A CASE STUDY OF THE CAPITAL STRUCTURE DECISIONS IN PRACTICE IN THE REAL ESTATE SECTOR OF J.S.E

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DEDICATION

Dedicated to my late mother M. Athanasie. We seem to be apart physically but spiritually we will always be together!

DECLARATION

I hereby declare that this dissertation is my original work and it has not been submitted for a degree at any other university.

Kamanzi James

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Abstract

An ongoing debate in the corporate finance world concerns the question of a firm's optimal capital structure. More specifically, is there a way of dividing a firm's capital into debt and equity so as to maximize the value of the firm? From a practical standpoint, this question is of utmost importance for corporate financial officers. Yet, the academic literature has not been very helpful to provide clear guidance on practical issues.

Except for a few theoretical models, there is a lack of literature concerning how companies should decide their leverage ratios in practice. These models are unfortunately not applicable in real practice because of their inability to provide managers with a precise optimal leverage level. The purpose of this study concerns the practical matter of deciding the appropriate capital structure and the possibility of improvement for the companies. Specifically: How do the case companies decide their capital structure? Are their current capital structures optimal or is there room for improvement? To be able to examine these questions it was necessary to investigate companies that are as comparable as possible within the same industry.

Different industries were identified based on the Johannesburg Stock Exchange industry classification and were analyzed for comparability issues. The real estate industry was found to experiences very similar business and has an opportunity to take more debt due to the nature of its asset structure. Three companies were selected from the property segment of the real estate industry based on their leverage ratios and companies with highest, medium, and lowest leverages in the industry were selected. Gold-edge was found to be the highest levered company in the industry, while Samrand and Putprop were found to be average and least levered in the industry respectively. The findings indicate that none of the companies uses capital structure models when deciding their capital structure. The case companies' capital structure indicates that Gold-edge's current capital structure is considered as close to optimal as possible while Putprop and Samrand current capital structure are not optimal and there is room for improvement.

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CHAPTER ONE: CAPITAL STRUCTURE DECISIONS IN PRACTICE

1.INTRODUCTION

Corporate capital structure and the decisions made by companies in structuring their capital is the core concept to be examined in this case study. Furthermore, the impact of capital structure decisions will be questioned in order to ascertain their validity and long-term effects on the value of firm.

1.1 Background of the study

Modern corporate finance theory was born with the publication in 1958 of Modigliani and Miller's theoretical model about corporate capital structure. They showed that, in a capital market free of taxes, transaction costs, and other frictions, the choice of the firm's capital structure could not affect its capital valuation.

Many of the capital structure studies during past forty years have involved examining how robust the model is to more realistic assumptions regarding market frictions and information sets available to managers and shareholders. Asymmetrical information (Myers and Majluf, 1984) between managers and outside investors led to the Pecking Order Model. The model predicts that firms will always choose the least expensive method for their financing needs and a financial hierarchy descends from internal funds to debt, to external equity. The development of agency theory in 1980's, coupled with detailed research into the extent and effect of bankruptcy costs during 1980's, led to a yet more detailed view of the utility of the basic M & M capital structure theory.

Finally, cross cultural examination of observed capital structure patterns in different countries has led to the current view that corporations act as if there is a unique capital structure for individual firms. This results from a trade off between the tax benefits of increasing leverage and increasing agency and financial distress costs that high debt entails.

The fact that there appears to be an optimal capital structure for each individual firm is very interesting, because a firm's value depends to a large extent on its capital structure. Consequently, this motivates financial managers to revise capital structures for their companies to create more value.

1.2 Problem discussion

An ongoing debate in the corporate finance world concerns the question of a firm's optimal capital structure. More specifically, is there a way of dividing a firm's capital into debt and equity so as to maximize the value of the firm? From a practical standpoint, this question is of utmost importance for corporate financial officers, as was demonstrated in the survey results of Graham and Harvey (2001). Yet, the academic literature has not been very helpful to provide clear guidance on practical issues.

Substantial portions of the literature concerning capital structure have dealt with issues regarding the leverage ratios, which have been analyzed in different ways. This research also dealt with these ratios from an entirely different angle. Except for a few theoretical models, there is a lack of literature concerning how companies should decide their leverage ratios in practice. These models are unfortunately not applicable in real practice because of their inability to provide managers with a precise optimal leverage level. It is therefore important to investigate how companies determine their capital structure due to the lack of literature within the area. Some questions beg asking in this connection:

- Could it be that companies have developed their own models?
- Is the decision process different between companies within the same industry?
- Does the highest levered company have a totally different procedure from the lowest levered company?

It is suspected that capital structure for some companies are not optimal and there are possibilities for improvement. To be able to examine this kind of question we need to investigate companies that are as comparable as possible within the same industry. I have examined all the industries in South Africa and come to the conclusion that the real estates industry suits this study. The reason for this is that real estates industry experiences very similar business and has an opportunity to take more debt due to the nature of its asset structure.

1.3 Problem and Purpose

The purpose of this study is to solve the questions stated below. These questions are formulated on the basis of the problem discussion and concern the practical matter of deciding the appropriate capital structure and the possibility of improvement for the companies.

- How do the case companies decide their capital structure?
- Are their current capital structures optimal or is there room for improvement?

1.4 Contribution

Except for inapplicable theoretical models, there is an acute lack of literature concerning how companies should act when determining their capital structure. This research aims to shed new light on how companies decide on their capital structure and will complement existing studies in the area of capital structure decisions. The study also investigates how the companies could improve their current capital structure by combining existing theoretical models and empirical findings.

1.5 Delimitation

The study involves only three property companies in the real estates industry and the data employed in this study are only for the year 2001. This may pose the question of representivity and cast doubt on the accuracy of the information. The inability to obtain information on some companies in this study may have impact on the results.

1.6 Dispositions.

This dissertation is divided into eight chapters:

1) Introduction
2) Methodology
3) Theoretical frame work
4) The real estate industry
5) The case of Putprop
6) The case of Gold-edge
7) The case of Samrand
8) Overall conclusion

Chapter Two describes the research methodology used. It explains the data collection methods and the research approach and discusses the reliability and validity issues of the study. Definitions and formula of key variables found in this dissertation are also presented in this section.

Chapter Three discusses different capital structure theories, models, and empirical findings of the prior researchers.

Chapter Four examines key variables that are important to the real estate companies. The industry leverage pattern is presented and is discussed in conjunction with the empirical pattern concerning capital structure.

Chapter Five, Six and Seven consists of answers to the research question, an analysis of the research results and the conclusion thereto.

Chapter Eight presents the overall conclusion and suggestion for further research in the area of corporate capital structure.

2 CHAPTER TWO: RESEARCH METHODOLOGY

In order to answer the question stated in 1.3, various types of research were considered. Explanation of each approach will be given as well as the motivation for selecting any particular approach.

2.1 Scientific approach

A study can either be deductive or inductive or can be a combination of two approaches. The deductive approach is preferred when an issue can be derived from theory and that theory then forms the basis for the empirical study. On the other hand, the inductive way is preferred when the problem issue has no connection to any kind of theory. In this case, the facts speak for themselves and one seeks regularity in events Halverson, (1992). This study used both the deductive and inductive approaches because the first question is inductive in nature and it does not rely on the theory. The second question is however of a deductive nature since the answer to it could be derived from a theory or a theoretical model.

2.2.Research design

According to Patel and Davidson (1994) every study has a research design. The design of the research functions as the basis for how the process will proceed and in what form the report will be presented. The case study research strategy is preferred when a "how" or "why" question is being asked about a contemporary set of events over which the investigator has little or no control. Moreover, the case study is advantageous when the purpose of the research is to generalize in an analytical way (Yin, 1994). In this study, a case study approach was used since the focus is on contemporary events and their impact on the future capital structure. To carry out this study in an effective manner, a comprehensive literature review was undertaken to become acquainted with theories and the latest empirical findings in the area. An industry analysis was conducted in order to seek the key patterns regarding leverage ratios and interviews were also carried out with selected respondents. These information sources and the annual reports of the respective companies formed the basis for the case analysis.

2.2.1.Case study design

Four basic research designs can be distinguished namely:

- a single case
- a multiple case
- a holistic case, and
- an embedded case

A single case design is advantageous when the case represents the critical test of an existing, well-formulated theory; when it represents a rare or unique event or when it fills a revelatory purpose. Multiple case designs are used when the same study contains more than one single case. On the other hand, the embedded design is preferred when the same case study involves more than one unit of analysis if only one unit of analysis is examined the holistic design is used. The Multiple case study design with a holistic view was chosen because it has one distinct advantage in comparison with a single case design: the evidence from multiple cases is often considered more interesting, and overall study is therefore regarded as being more solid than the single case design and the theoretical framework becomes the vehicle for generalizing about the new cases Yin, (1994).

2.3.The quality of research design

Four tests are commonly used to establish the quality of any empirical research. These tests include:

- construct validity
- internal validity
- external validity, and
- reliability.

2.3.1 Construct validity.

According to Yin (1994), there are three methods by which to increase the construct validity. The first method is the use of multiple sources of evidence. The second method is to establish a chain of evidence, which is also relevant during data collection. The third method is to have the draft case study report reviewed by key informants. In order to ensure the construct validity in this study, multiple sources of evidence were used. These include interviews, annual reports of case companies, and capital structure theories. The chain of evidence was also established through an analysis of the real estate industry and the preliminary results were discussed with key participants, such as three CFOs of the respective companies.

2.3.2 Internal validity

Internal validity exists when the instrument used in a study measures what it is supposed to measure. To test for internal validity, a pilot study of preliminary questionnaires was carried out before interviews were held and adjustments were incorporated. Only audited financial statements were used and recalculations were done where necessary to insure consistency and accuracy. The theory also suggests that an explanation building procedure is appropriate for exploratory studies because in most existing case studies explanation building occurred in narrative form and such narrative form cannot be precise (Yin 1994). Yin further suggests that good case studies are the ones in which explanations have reflected some theoretical significant proposition. In this case study, reference is made to capital structure theory throughout the analysis section. It is proposed that this will increase the internal validity.

2.3.3 External validity

The examination of multiple cases is a common strategy used to increase external validity. In this study, three companies with different leverage levels were analysed and comparisons were made between them. Putprop was selected which is the lowest levered company in the industry, Samrand, averagely levered and Gold-edge, the highest levered in the industry.

2.3.4 Reliability

To secure the reliability of this case study, all the data was interpreted cautiously throughout the research process. Data from different sources was compared in order to attain the highest possible reliability. In order to secure the reliability of interviews, the respondents were selected according to their level of knowledge of company's capital structure.

2.4 Sample selection

The companies used in the study, were selected based on the following criteria:

- must be from the same industry
- must have no restriction on leverage level
- must have asset structure that is easily valued by the market, and
- must be as comparable as possible in terms of operating environment.

Different industries were identified based on the Johannesburg Stock Exchange industry classification and were analysed for comparability issues. Real estate industry shows the most similarity compared to other industries, it also presents asset structure that is easily valued by the market. When a larger fraction of firm's assets is tangible, these assets can serve as collateral, which diminishes the risk to the lender of suffering the agency cost of debt. The liquidation value of the firm's assets will also be higher with tangible assets, which will decrease the possibility of mispricing in the event of bankruptcy and make the lender more willing to grant the loans (Rajan and Zingales, 1994). Given this ability of companies in the real estates industry to raise more debt, it would be interesting to examine how these companies decide how much debt should be used in their capital structure.

Real estate industry companies were categorized according to whether they are Property Unit Trusts, Property Loan Stocks or Property Companies. Property Unit Trusts are governed by Unit Trust Body and have restriction on their capital structure i.e. they have a limit on the debt ratio in their capital structure. For this reason the Unit Trust companies were eliminated in the case study. The Property Loan Stocks and Property Companies have no restrictions on their capital structures and could be included in the case study. However, Property Loan Stock was also eliminated based on the fact that the companies that satisfied the leverage criteria were not ready for the case study.

Three companies were selected from the property segment of the real estate industry based on their leverage ratios and companies with highest, medium, and lowest leverages in the industry were selected. Gold-edge was found to be the highest levered company in the industry, while Samrand and Putprop were found to be average and least levered in the industry respectively refer Appendix VI, page 99

The rationale for these interval leverage ratios is that different information on capital structure decisions might be obtained (Harris and Raviv, 1991) noted that it is generally accepted that firms in a given industry will have similar leverage ratios while leverage ratios vary across industries.

2.5 Data collections

2.5.1 Secondary data

Secondary data can be divided into two categories, depending on whether it is collected from internal or external sources. Internal data comes from within the organization while

external data comes from outside the organization (Holme & Solvang, 1991). The secondary data in this research consisted of external data gathered from university of Natal Library; national and international interlibrary data; academics, as well as organizational journals and the Internet. An extensive review of the past and present research on this topic was conducted to establish the framework of the new study, to set objectives and to gain a through knowledge of the given topic. Thereafter, the study focused primarily on the collection of the data.

2.5.2 Primary data

One of the most important sources of case study data was the interview. Interviews can be of a very different nature, depending on what suits the purposes of the research (Holme &Solvang, 1991). The communication-based method of data collection has been used to set up a formal interview with the selected personnel of the case companies. The initial encounter could be defined as an "experience survey", the objective of the survey was to:

- ascertain the nature of corporate preference in raising new funds
- to establish the relative importance of various capital structures input which influences financing decisions
- to ascertain the relative importance of various financial planning principles governing their financing decisions
- the extent to which the debt ratios are dependent on the performances characteristics of their firm as perceived by managers
- discuss and record the current procedures used by the companies in establishing optimal capital structure

The first four questions intended to ascertain the basic financing philosophy (covered in the first four points above) of the case companies, and fifth question intended to discuss and record the current procedures used by the companies in establishing optimal capital structure (covered in the fifth point above), refer Appendix vii)

2.6 Data Analysis Technique

2.6.1 Within case analysis

Company annual reports and interview answers were analysed to identify any pattern within the firm. Preparation of a case write-up for each company, categorization of interview questions and answers and examination of the data from within (annual reports) for similarities and differences was conducted.

2.6.2. Cross-case analysis

The analysis also involved an examination of pairs of cases, categorizing the similarities and differences in each pair, this was followed by an examination of similar pairs for differences, and dissimilar pairs for similarities between them. This process sought to identify patterns or any conflicting evidence that would result in a follow up focused interview to confirm or correct the initial data. In this way evidence could be linked to the findings and relationships could be established in answer to research questions.

2.7 Definitions of key variables

Key variables have been identified as those factors that could be used to predict the real estate industry capital structure pattern. For the purpose of this study these variable are: interest coverage ratio, leverage ratios, equity ratios (equity/debt), debt ratios (debt/equity), asset beta, equity beta and financial beta.

2.7.1 Interest coverage ratio

The interest coverage ratio measures the firm's ability to make contractual interest payment. The higher the value of this ratio, the better able the firm will be able to fulfill its interest obligations. The interest coverage formula is given as follows:

$$\text{Interest coverage ratio} = \frac{\text{Earning before interest and taxes}}{\text{Interest charges}}$$

2.7.2 Leverage ratio

Leverage ratio measures the proportional of total assets financed by the firm's creditors. The higher the ratio, the greater the amount of external money being used to generate profits. There are different approaches for the calculation of leverage ratio, however, the formula that has been used in this dissertation is given as follows:

$$\text{Leverage ratio} = \frac{\text{Total debt}}{\text{Total debt} + \text{Shareholders' fund}}$$

2.7.3 Debt/Equity ratio (Debt ratio)

Debt/Equity ratio measures the proportion of total equity financed by firm's creditors. The higher the ratio, the greater the amount of the external money being used to generate profits. The formula used in this dissertation is given as follows:

$$\text{Debt/Equity ratio} = \frac{\text{Total debt}}{\text{Total equity}}$$

2.7.4 Equity/debt ratio (Equity ratio)

Equity/Debt ratio measures the extent to which the total equity covers the total debt. The higher the ratio the greater the amount of shareholders' money being used to generate profit. Equity ratio is calculated as follows:

$$\text{Equity Debt ratio} = \frac{\text{Total equity}}{\text{Total debt}}$$

2.7.5 Asset beta

The firm's asset beta measures the systematic risk of the firm's asset and it is sometimes called unlevered beta because it is the beta that the share would have if the firm had no debt. Asset beta (unlevered beta) is given by the formula as follows:

$$\text{Asset beta } (\beta_A) = \frac{E}{D(1\text{-}Tc) + E} \times (\beta_E) + \frac{D}{D(1\text{-}Tc) + E} \times \beta_D$$

If beta of debt, β_D, is assumed to be zero, then:

$$\text{Asset beta} = \frac{E}{D(1\text{-}Tc) + E} \times (\beta_E)$$

2.7.6 Equity beta

Equity beta is composed of *financial beta* and *asset or business beta* and can be derived from asset beta as follows:

$\beta_E = (\beta_A) \times 1 + D/E\ (1\text{-}Tc)$.

Thus, the equity beta, (β_E), equals the asset beta, (β_A), multiplied by equity multiplier, *(1 + D/E (1-Tc)(*Ross, Westerfield and Jaffe, 1993*)*.

2.7.7 Financial beta

The firm's financial beta depends on its financial policy and measures the financial risk of the equity. Financial beta can be obtained by subtracting asset beta (unlevered beta) from equity beta (total risk) as follows:

Financial beta = *Equity beta – Asset beta* = (β_E) -(β_A)

3 CHAPTER THREE: THEORETICAL FRAMEWORK

The theories and empirical findings concerning capital structure will be presented in this chapter. This knowledge is necessary in order to understand the case study analysis.

3.1 Modigliani and Miller's propositions

3.1.1 M & M Proposition I with no taxes

In 1958, Franco Modigliani and Merton Miller published their first article concerning capital structure. They had a convincing argument that a firm cannot change the total value of the outstanding securities by changing the proportion of its capital structure. The value of the firm will be the same, regardless of which type of capital structure is chosen. This is a strong argument where the authors explicitly or implicitly assume that:

- capital market are frictionless: the securities can be purchased and sold costless and instantaneously;
- individuals can borrow and lend at the risk free rate;
- corporation can issue only two types of securities, being risky equity and risk-free debt;
- all corporations are assumed to be of the same risk class;
- there are no corporate or personal taxes;
- there is no growth and all cash flow is perpetuities.
- the corporate lender and the public have the same information, and there are no signalling opportunities; and
- there are no agency costs and managers always maximize shareholders' wealth.

When all assumptions are fulfilled, equation 3.1 holds.

Equation 3.1

$V_L=V_U$

V_L=value of levered firm

V_U=value of unlevered firm

This model is called M&M proposition I, where the value of unlevered firm is the same as the value of levered firm. This means that the value of any firm is independent of its capital structure (Modigliani and Miller, 1958). At first, with all the assumptions, the model seem unrealistic, but even when some of the assumptions are relaxed the argument still holds.

Proposition I is based on the fact that if levered firms are priced too high, rational investors will simply borrow on personal accounts to buy shares in unlevered firms. As long as individuals borrow and lend on the same terms as the firm, they can duplicate the effect of corporate leverage on their own. This is commonly referred to as home-made leverage. The home-made findings are considered the starting point of modern managerial finance and it is one of the most important findings in the area of corporate finance (Ross Westfield and Jaffe, 1993).

3.1.2 M&M proposition II with no taxes

Since levered equity has greater risk, it should have greater expected returns as compensation. This type of reasoning led to the development of M&M proposition II. Modigliani and Miller argued that the expected return on equity is positively related to leverage, because the risk of equity increases with leverage. To develop this proposition, weighted average cost of capital is used, which is written as:

$r_{WACC} = {}^{D}/_{D+E} * r_D + {}^{E}/_{D+E} * r_E$. If the cost of capital for an all equity firm can be defined as r_A, then r_{WACC} must always be equal to r_A in a world with out taxes, refer equation 3.2 below:

Equation 3.2

$r_{WACC} = r_A = {}^{D}/_{D+E} * r_D + {}^{E}/_{D+E} * r_E$.

D and E represent the firm's debt and equity respectively, and the return on asset (r_A) is a constant, regardless of capital structure. By rearranging the terms, the M&M Proposition II is obtained, refer equation 3.3 below:

Equation 3.3

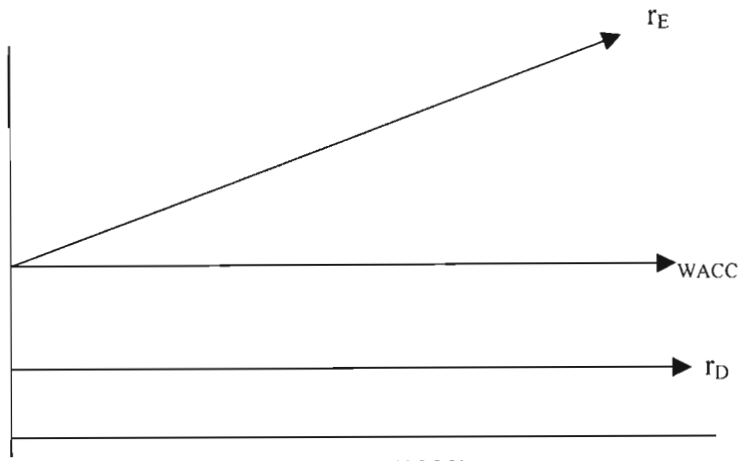
$r_E = r_A + {}^{D}/_{E} * r_A - r_D$

Since we know that the (r_A) is constant for any capital structure, and thus the return on debt (r_D) is assumed to be constant, we can calculate the return on equity (r_E) for different kinds of capital structures. The larger the amount of debt, the larger the required return on equity.

We know from Proposition I that the company's WACC (r_A) is constant, and the changing capital structure cannot affect its value. We also know that, according to Proposition II, the rate of return on equity increases as leverage increases. Although these appear to contradict each other, what happens is that the risk increases as leverage increases. When the firm moves from an unlevered structure to a levered structure, the opening income is divided into smaller amounts of outstanding shares, which results in larger r_E. r_E has increased, but risk (beta) has also increased (Modigliani & Miller, 1958)

Figure 3.1 shows that r_E is not important when determining an optimal capital structure. r_E can always be increased by borrowing, but the increase in r_E is offset by the risk. WACC remains constant even when firms change their capital structure and consequently they are not better off with leverage (this statement holds in a world with no taxes).

Figure 3.1 M& M Proposition II with no taxes



Source: Copeland and Weston (1992)

M & M proposition II concludes that changing from equity to debt that seems to be cheaper, cannot reduce the overall cost of capital. As the firm adds debt, the remaining equity becomes more risky and the cost of equity increases. The increase in the cost of equity capital is offset by the larger proportion financed by low-cost debt. The value of the firm and the firm's overall cost is invariable to leverage, which is shown by a constant WACC.

3.1.3 M & M Proposition I, with taxes

One of the more critical assumptions in M & M Proposition I and II is that there are no taxes. This assumption is not realistic, since every country taxes company income. Governments have chosen to "subsidize" interest payment to providers of debt capital, which means that debt financing is tax deductible. In other words, the levered company pays less tax than an all-equity company does.

The value of the levered firm is equal to the value of unlevered firm plus the present value of the tax shield provided by debt, as seen in equation 3.4:

Equation 3.4

$$V_L = V_U + T_C$$

When the assumption of taxes is relaxed, the market value of the company increases by taking on more risk-free debt. Consequently the company should take on 100% debt to optimize company value. This is M & M Proposition I with taxes (Modigliani and Miller, 1963).

3.1.4 M & M Proposition II, with taxes

The M & M Proposition II with no taxes shows a positive relationship between the expected return on equity and leverage. The same intuition holds when we add corporate taxes, as seen in equation 3.5:

Equation 3.5

$r_E = r_A + D/E * (1-Tc) * (r_A - r_D)$

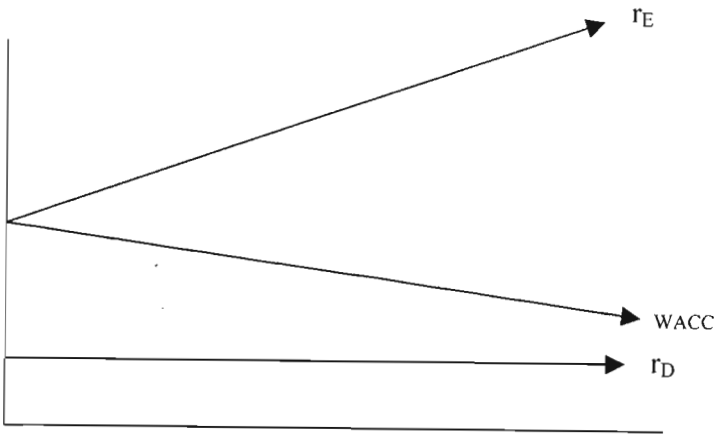
The WACC, including taxes, is seen in equation 3.6:

Equation 3.6

$WACC = D/D+E * r_D (1-Tc) + E/D + E * r_E$

Figure 3.2 shows that higher leverage level provides the firm with a lower WACC when corporate taxes exist. This can be compared to Figure 3.1 where WACC is constant even when leverage is increased. This suggests that the firm's value will increase with higher leverage since WACC will decrease, assuming that corporate taxes exist. It shows that the larger the amount of debt, the higher the value of the firm, which implies that 100% debt financing should be implemented (Copeland and Weston, 1992).

Figure 3.2 M & M Proposition II, with taxes



Source: Copeland and Weston (1992)

It is important to keep in mind the restrictive assumptions that must be met for the M & M proposition with taxes to hold. The most important assumption is that it ignores bankruptcy costs, which have been found to exist in reality.

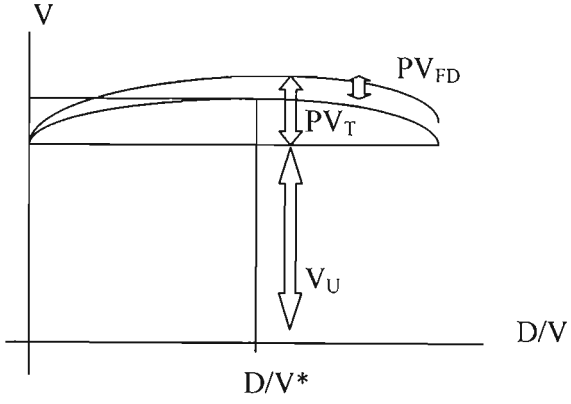
3.2 THEORETICAL MODELS

The M & M propositions have created a starting point for capital structure theory and today there are three models that have been incorporated into the mainstream of corporate finance. The Trade Off Model, Pecking Order Hypothesis and the Signaling Hypothesis try to explain observed patterns, they do not calculate an optimal capital structure level (Copeland and Weston, 1992)

3.2.1 The Trade Off Model.

According to Modigliani and Miller (1963), firms would prefer to be 100% debt financed in order to be able to take full advantage of the tax shield. However, 100% debt financing is not what occurs in the real world due to the fact that there is danger of bankruptcy. In the M & M proposition with taxes it is assumed that there are no bankruptcy costs. Instead the optimal capital structure is found at the trade off point where the gain from taking additional debt is offset by the extra cost incurred of financial distress as can be seen in Figure 3.3.

Figure 3.3. The Trade Off Model



Source: Chandra (2000)

V = value of the firm

V_u = value of unlevered firm

PV_T = present value of tax deductible value

PV_{FD} = present value of the risk for financial distress.

D/V* = Firm's optimal capital structure

The upper curve in Figure 3.3 shows the value of the company without considering the cost of financial distress. When financial distress is taken into account and deducted from

the upper curve, we arrive at the lower curve. The optimal capital structure occurs where the lower curve has its highest point.

3.2.1.1 Financial distress

Debt provides tax benefits to the firm, but also puts pressure on the firm, since interest and principle payment are obligations, according to the Trade Off Model. The closer the firm is to bankruptcy, the larger the financial distress. The ultimate cost of financial distress is bankruptcy, where ownership of the firm's assets is legally transferred from the stockholders to the bondholders (Haugen and Senbet, 1978).

The possibility of bankruptcy cost has a negative effect on the value of the firm. However, it is not the risk of bankruptcy itself that lowers the value, rather the costs associated with it. The costs associated with bankruptcy are categorized as direct and indirect financial distress costs.

Direct costs can be seen as out of pocket cash expenses, which are directly related to the filing of bankruptcy and the action of bankruptcy. Examples of direct costs are the fees for lawyers, investment bankers, administrative fees, and the value of managerial time spent in administering the bankruptcy (Haugen and Senbet, 1978). In 1984, Altman estimated the direct costs of financial distress to be 3.1% of the firm value. In a study of the direct financial distress costs of 20 railroad bankruptcies, Warner (1997) found that net financial distress were, on average, 1 percent of the market value of the firm seven years before bankruptcy and were somewhat higher percentages as bankruptcy approached. For example, this rose to 2.5 percent of the market value of the firm three years before bankruptcy.

Indirect costs are expenses or economic losses that result from bankruptcy but are not cash expenses of the process itself. Examples of such costs are, lost sales during and after bankruptcy, diversion of management time when bankruptcy is underway, and loss of key employees after the firm goes bankrupt. (Titman, 1984) found that sales would frequently be lost because of the customers' fear of impaired service and loss of trust in the company.

In 1984 Altman conducted a study with a sample of 19 firms: and 12 retailers and 7 industries that all filed for bankruptcy between 1970 and 1978. He found the arithmetic indirect financial distress costs to be 10,5% of a firm value. Altman (1984) also estimated that when added together, indirect and direct costs are often greater than 20% of the firm value. This finding gives reason to believe that financial distress costs are sufficiently

large enough to support the theory of optimal capital structure that is based on the trade off between gains from tax shield and losses that accompany the costs of financial distress.

3.2.1.2 Agency costs

Another restraining influence on the decision to take on high debt is the agency cost of doing so. Agency cost arises out of what is known as the "principal-agent problem". In most large firms the finance providers (principals) are not able to actively manage the firm. They employ "agents" (managers) and it is possible for these agents to act in ways that are not always in the best interest of equity or debt holders. Two types of agency costs discussed are: agency costs of equity and agency costs of debt.

Agency costs of equity has its root in simple argument that one will work harder if one is the owner of the company than if one is an employee. Also, if one owns a larger percentage of the company, one will work harder than if one owned a smaller percentage of the company (Copeland and Weston, 1992). A more detailed discussion of the agency costs of equity can be found in Appendix I.

Agency costs of debt occur because there is a conflict of interest between stockholders and bondholders. As a firm increases the amount of debt in capital structure, the bondholder begins taking on an increasing fraction of the firms business and operating risk, but shareholders and managers still control the firm's business and operating decisions. This gives managers a variety of different actions of selfish strategies, which potentially benefit the stockholder at the expense of bondholders. A more detailed explanation of this action is contained in Appendix II.

3.3 Information costs and signalling effects.

Capital structure theory has become yet another dimension with the explicit modelling of private information in financial theory. Two main strands have emerged in the literature on asymmetric information. In the first approach, debt is regarded as a means to signal confidence to the firm's investors. In the second approach, it is argued that the capital structure is designed to mitigate distortions in the investment decisions caused by information asymmetries.

3.3.1 Signalling with proportion of debt

In one set of approaches, the choice of capital structure signals to outside investors the information of insiders. Ross (1977) assumes that managers (the insiders) know the true distribution of firm returns, but investors do not. He argues that investors interpret larger levels of leverage as a signal of higher quality. The intuition behind his argument is that debt and equity differ in an important way that is crucial for signalling insider information. Debt is a contractual obligation to repay interests and the principal. Failure to make these payments can lead to bankruptcy and managers may lose their jobs. In contrast, equity is more forgiving. Although shareholders expect dividends at least to be maintained, managers have more discretion and can reduce these dividends in times of financial distress. Therefore, adding debt to the capital structure can be interpreted as a credible signal of high future cash flows and of the managers' confidence about the firm.

Lower quality firms will not imitate higher quality firm by issuing more debt because they have higher bankruptcy costs at any level of debt. Accordingly, Ross (1977) concludes that investors take larger levels of debt as a signal of higher quality and that profitability and leverage are thus positively related.

The Signaling Hypothesis offers a good prediction of market response to the different types of security issues. Debt issues signal good news and are greeted with a positive stock price increase, while equity issues signal bad news, which is meet with significant stock price decline. However, observed capital structure patterns suggest that the signalling does not predict actual behaviour very accurately. For example, leverage ratios have been found to be inversely related to profitability in most industries and not directly related to it as the Signalling Hypothesis predicts them to be. Another trend is that the Signalling Hypothesis suggests that the industries with extensive growth options and intangible assets should employ more debt than mature industries with more tangible assets. This is because growth companies have more severe information asymmetry problems and have a greater need for signalling. However, the total opposite has been found in empirical studies. It can therefore be concluded that the signaling hypothesis does not explain the real world of modern corporate finance very well (Meggison, 1997).

3.3.2 Pecking Order Theory

Myers and Majluf (1984) suggest that the capital structure can help to mitigate inefficiencies in a firm's investment program that are caused by information asymmetries. They show that managers use private information to issue risky securities when they are overpriced. Because market participants cannot separate information about new projects from information about whether the firm is under or overvalued, equity will be mispriced by market participants. If firms are required to finance new projects by issuing equity, underpricing may be so severe that new investors capture more than the net present value of the new project, which would result in a net loss to existing shareholders.

Even a positive net present value project will be rejected, leading to yet another under-investment problem. The information costs associated with debt and equity issues has led Myers (1984) to argue that a firm's capital structure reflects the accumulation of past financial requirements. He assumes a firm's manager knows more about the company's current earnings and investment opportunities than do outside investors, which is an asymmetric information assumption. Secondly, he assumes that managers act in the best interest of the firm's existing shareholders. If managers are employed to maximize the interest of existing shareholders, they will finance the new project with the less information sensitive instrument. In equilibrium, firms avoids mispricing by walking down the pecking order: investment is financed first with internal funds, then with new issue of debt, and finally with new issue of equity.

Thus if good firms choose to finance the new project at all, in Myers and Majluf equilibrium they will do so with internal financing when available, and if external financing is required, debt would be preferred over equity.

In contrast to the Trade-Off Theory, there is no well-defined target leverage ratio in the Pecking Order Theory. There are two kinds of equity- internal and external. One is at the top of the pecking order and one at the bottom. A firm's leverage ratio thus reflects its past cumulative requirement for external finance (Baker and Wurgler, 2000).
The Pecking Order Theory can explain why the most profitable firms tend to borrow less: they simply do not need external funds. Less profitable firms issue debt because they do not have sufficient internal funds and because debt has lower flotation and information

costs compared to equity. Debt is the first source of external finance on the pecking order. Equity is issued only as a last resort, when the debt capacity is fully exhausted. The tax benefits of debt are a second-order effect. The debt ratio changes when there is an imbalance between internal funds and real investment opportunities.

3.4 Observed patterns

This section presents observed patterns found through cross-sectional and time series studies. The cross- section studies attempt to explain observed financial leverage as a function of the firm's tax rate, the type assets, profitability, and it is important to recognize these patterns since there could be a reason why a similar companies have positioned themselves with a similar capital structures. One possible explanation could be that companies strive for an optimal capital structure. The time series studies show whether capital structure has an impact on the firm value through announcement effect on stock price. The time series studies will reveal whether the capital structure decision has really affected the firm value.

3.4.1 Cross-sectional studies

From cross sectional studies, certain variables that significantly affect firms leverage were found. The seven most important variables are country, industry, taxes, assets, profitability, size and growth.

3.4.1.1 Countries

Well accepted fact is that leverage varies significantly across different countries. The main contributing factor is the nation's reliance on the capital market versus banks for corporate financing. Some countries, for example, Japan companies, work in a close relationship with the nation's banks, and therefore high leverage can often be found. In the other countries like U.S the capital market is relied on to a much greater extent for financing and in these countries, a lower leverage is commonly found. Other factors that influence capital structure decisions are historical, institution and cultural factors, which are different in different countries. Such studies have shown that American, British, Australian, and Canadian companies have lower average book value leverage ratios than their counterparts in Japan, France and Italy and other European countries. On the other hand, British and German firms have by far the lowest market value leverage ratios (Rajan & Zingales, 1994).

3.4.1.2 Industry

Different industry groups have been found to have significant differences in capital structure. In all developed countries, it has been found that certain industries, such as: (utilities, transportation companies and mature, capital intensive manufacturing firms, mining companies and capital-intensive firms with few growth opportunities) are highly levered while most rapidly growing or technology-based manufacturing companies employ little or no long-term debt financing. Harris and Raviv, (1991) conclude that firms within an industry have more in common with each other than firms in different industries and that there has been a persistent difference in industry debt ratios over time.

3.4.1.3 Assets

The type of assets that the firm holds plays a significant role in determining the firm's capital structure. A reason for this could be that when a larger proportion of a firm's assets are tangible, those assets can serve as collateral which diminishes the risk of the lender from suffering agency cost of debt. The liquidation value of the firm's assets will also be higher with tangible assets, which will decrease the possibility of mispricing in the event of bankruptcy and make will lender more willing to supply the loans (Rajan and Zingales, 1994). It has been also found that firms can borrow at a lower interest rate if their debt is secured by tangible assets with a long-term value (Williamson, 1998).
Collateralizing the debt also restricts the firms to using the funds for the specified project and decreases the conflict between the equity holder and debt holders (Jensen and Meckling, 1976). In Rajan and Zingles (1994) study of European countries, it was found that the tangibility of assets is positively correlated with leverage in all countries examined.

3.4.1.4 Taxes

Studies have proved that increases in corporate income tax rates are associated with increased debt usage by corporations. However, it a contradictory fact that the capital structure of American companies has been remarkably constant over the period 1929-1980, especially compared to the dramatic change in tax rates that has occurred this century (Bernake &Campbell, 1986). According to the trade off model, taxes should greatly affect the leverage level.

3.4.1.5 Profitability

Regardless of the industry in question, it has been found that the most profitable firm borrows the least. The finding that the more profitable the firm is, the less they borrow, is contradictory to the Trade-Off Model. The Trade-Off Model suggests that profitable firms should borrow more, since they have a greater need to protect their income from corporate taxes. Another factor that support a positive relationship between profitability and leverage is that the probability of bankruptcy decreases as profitability increases (Myers, 1993). In Rajan and Zingles, (1994) study of European countries it was also found that profitability is negatively correlated with leverage for all countries, except Germany. These finding are against Trade-Off Model, but supports the Pecking Order Hypothesis by Myers and Majluf ,(1984).

3.4.1.6 Size

Size is an important determinant of capital structure. Different studies in the area made by Friend & Lang (1988), Marsh (1982), Clason & Wilhelmsen (1988), have all reached the same conclusion that firm's size has a significant positive effect on capital structure. A possible explanation is that larger firms are more diversified and bear lower bankruptcy costs.

3.4.1.7 Growth

Various studies have been conducted and have found that a firm's growth has an impact on leverage. Marsh (1982) Titman and Wessels, (1988), Friend and Lang (1988), have shown that firm's growth and leverage has a positive relationship with its capital structure. This counters the argument that growing firms have more flexibility in their investment choices and may accept risky projects. Consequently, growth is expected to have a negative correlation with the leverage ratio (Jensen and Suhler, 1976). Another argument is that highly levered companies are more likely to procrastinate profitable investment opportunities (Myers, 1977). These arguments state that firms expecting high future growth should use a large amount of equity financing, which implies a negative relationship. The studies show a positive relationship between leverage and growth, which supports the Pecking Order Hypothesis rather than any other theories.

3.4.2 Time series studies

Generally speaking, leverage-increasing exchange offers have significant positive announcement effects on the stock price. This has been found by comparing the two-day announcement effect for a wide variety of corporate events. Leverage decreasing events, such exchange of debt with a common stock, have been shown to have a significant negative effect on the stock price. Evidence by Musulis and Korwar, (1986), Asquith and Mullins (1986), and Mikleson and Parch, (1986) indicate that issues of seasoned equity are interpreted as bad news by the marketplace, with significant announcement date effects on equity prices. This result is consistent with Myers and Majluf's Pecking Order Hypothesis of capital structure. Firms will only use equity as a last resort where stock repurchases is at the opposite end of the spectrum. Markets interpret an increase in leverage as favorable signal about future prospects for the company (Copeland and Weston, 1992). We can conclude that all the leverage –increasing events have positive announcement effects while all leverage-decreasing events have negative announcement effects. Consequently, capital structure affects the value of the firm.

3.5 Concluding comments

The Pecking Order Hypothesis, the Signalling Hypothesis and Trade Off Model explain observed capital structure patterns. These models do not help us to predict a precise optimal capital structure. Even though the trade-off model cannot be used to specify a precise capital structure, it however, enables us to make three statements about the leverage:

- Firms with more business risk ought to use less debt than lower risk firms, the greater the business risk, the greater the probability of financial distress at any level of debt, hence the greater the expected cost of distress. Thus, the firms with less business risk can borrow more before the expected costs of distress offset the tax advantage of borrowing.
- Firms that have tangible, readily marketable assets such as real estate can use more debt than firm whose value is primarily derived from intangible assets such as patent and goodwill. The cost of financial distress depends not only on the probability of incurring distress but also on what happens if distress occurs. Specialised assets and intangible assets are more likely to lose value than standardized, tangible assets if the financial distress occurs
- Firms that are currently paying taxes at the highest rate, and that are likely to do so in the future, should use more debt than firms with lower tax rates.

- Trade Off Models have intuitive appeal because they lead to the conclusion that both no debt and all debt are bad, while a "moderate " debt level is good. However, there has been only mixed empirical support for this model, which suggests that factors not incorporated in the model are also at work.

The signalling theory or asymmetric information, which recognizes that managers have better information than most investors, postulates that there is a preferred "pecking order" of financing. This one leads to the conclusion that a firm should maintain borrowing capacity so that it can always issue debt on reasonable terms rather than have to issue new equity at the wrong time. Although, no capital structure models provide a method for accurately calculating optimum capital structure, they all indicate behaviour that, when incorporated with other factors, can approximately lead to what would be the optimum capital structure.

3.6 Factors determining capital structure

So far various theoretical models an on which to base optimal capital structure have been introduced. The cross-section of studies have shown capital structure patterns but have not explained how the patterns have occurred or whether they are optimal from a firm's point of view. By combining the knowledge from these sources, it is possible to determine which factors are most important when determining an appropriate capital structure for a company in the real estate industry.

3.6.1 Making use of tax shield

A major reason for using debt is that the interest, which is tax deductible, lowers the effective cost of debt. The more money the firm borrows, the greater the benefit of the tax shield. Furthermore, the higher a firm's corporate rate is, the greater the advantage of debt (Modigliani and Miller, 1963). However, if much of the firm's income is already protected from taxes by accelerated depreciation or tax loss carry forwards, its tax rate will be low, and in this case debt will not be as advantageous as it would be to a firm with an effective tax rate. Also if a firm is not making a profit, there is no tax advantage to a debt at all.

The cross-section studies found that profitability is negatively correlated to leverage, which is contradictory to the Trade-Off Theory of capital structure. A profitable firm should have every intention of protecting its income from corporate taxes, but the

opposite is seen in real life. Very profitable firms use the tax shield to a smaller extent, because these firms do not need much debt financing. The higher rate of return enables them to do most of their financing with retained earnings (Donaldson, 1961). From a Trade-Off Model point of view this observed pattern is not optimal.

3.6.2 Limitation to borrowing

Lending and rating agency play an important role when determining how much debt a firm can issue and to what extent the tax shield can be used. Banks might not want to issue loans to firms that are already exposed to a high leverage level. Creditors when issuing additional loans could also use an unsatisfactory debt coverage ratio as a limit. In the real estate industry, a debt coverage ratio of 1.25 is considered to be a minimum requirement by creditors (Maisel, 1987). Further, the institute may downgrade a firm's bond when more debt is issued, and this effect can influence firms to finance their expansion with equity (Weston and Brigham, 1990).

3.6.3 Business risk

Business risk is defined as the uncertainty inherent in projections of future returns on assets (ROA) if no debt is issued. The greater the fluctuation in returns on asset, the larger the firm's business risks. The larger the firm's business risk, the lower is its optimal leverage level. Business risk is therefore one of the most important factors when making capital structure decisions. Business risk could either be determined by fundamental factors as stated below or by unlevered beta. Unlevered beta is derived from equity beta, which consists of a firm's business and financial risk. Consequently the equity beta must be unlevered in order to refine business risk. Using equation 3.7, set out below a higher levered company will have a higher levered beta since a larger financial risk is used (Copeland and Weston, 1992).

Equation 3.7

$$\beta_A = \frac{E}{D \times (1-T_C)+E} \times \beta_E \quad \frac{D}{D \times (1-T_C)+E} \times \beta_D$$

Equation 3.7 shows how unlevered beta is calculated and is only measure used when estimating business risk. Fundamental factors will also be used in order to estimate business risk for the case companies.

3.6.3.1Industry

It can be assumed that companies that belong to the same industry, face the same economic conditions, but that economic conditions may vary among industries. Consequently, industry classification can be used as a proxy for business risk. The cross-section study in paragraph 3.4.1.2 has shown that different industries experience different capital structure patterns, which proves that industry classification can be used as a proxy for business risk (Asgharin, 1997).

3.6.3.2 Growth rate

Capital-intensive firm with few growth opportunities should be highly levered while technology-based industries with many growth opportunities should have relatively little debt. This is due to the fact that the growing firms have more flexibility in their investment choices and may accept risky projects (Myers, 1993).

3.6.3.3 Assets structure

In the cross-sectional studies we found that firms with tangible assets have a higher leverage ratio compared to firms with intangible assets. This can be explained by their ability to use tangible assets as collateral for loans. Therefore, it can be assumed that companies with tangible assets structure experience lower business risk. The real estate companies are usually highly levered, whereas companies involved in a technological R & D employ less debt. Tangible assets reduce business risk and therefore also the cost of financial distress (Asgharin, 1997)

3.6.3.4 Fundamental factors causing variance in the future earnings

- *Demand variability*. Presuming all other factors are constant, the more stable the unity sales of the firm's products are, lower is its business risk. With stable sales a firm can safely accept more debt and incur higher fixed charges than a company with unstable sales.
- *Sales price variability*. Firms whose products are sold in highly volatile markets are exposed to higher business risk than similar firms whose output prices are relatively stable.
- *Property characteristics*. A real estate company's degree of commercial properties compared to residential ones influences business risk. A higher proportion of commercial properties often means a higher business risk, ceteris paribus. The

reason is that demand fluctuates to a larger extent compared to residential properties.

3.6.4 Financial risk

Financial risk is defined as the portion of stockholders' risk, over and above business risk, resulting from the use of financial leverage (Weston and Brigham, 1990). The following factors will be used in order to estimate financial risk.

3.6.4.1 Leverage level

A company experiencing a larger leverage level is also experiencing large level of fixed interest payment. Compared to equity financing there is no obligatory fixed payments. Consequently, a larger leverage level leads to a larger financial risk.

3.6.4.2 Interest coverage ratio

The fixed charges of a firm include principal and interest payment on debt and lease payments. If the firm wants to take on additional debt, which will increase fixed charges, it should analyze its expected future cash flows, since fixed charges must be met with cash. The inability to meet these charges may result in financial insolvency and bankruptcy. When the debt coverage ratio is equal to one, it means that the firm is just able to pay its interest expenses. A ratio below one means that the firm will not be able to pay its interest expenses. The larger the debt coverage ratio is, the lower is the company's financial risk (Van Horne, 1986)

3.6.4.3 Financial beta

A company's total risk is a combination of business and financial risk. In Section 3.5.3 business risk was estimated by using unlevered beta. To refine financial risk from total risk it is necessary to subtract a company's business risk from the total risk. Consequently, financial risk is estimated by subtracting unlevered beta (asset beta) from equity beta (total risk). Evidently, what is left is a measure of company financial risk.

3.6.4.4 Interest rate sensitivity

The interest rate sensitivity reveals what happens to a firm's results when a one percentage unit change in the borrowing rate occurs. This sensitivity analysis measures the exposure of the company's operations to the interest rate risk.

3.6.4.5 Financial flexibility

It is crucial for firm not be forced to turn down promising projects because funds are not available. The firm should always be in a position to raise money, even when the interest is not favourable. In bad times the suppliers of capital are more willing to make funds available through bonds to firms with strong balance sheets and secured positions. The greater the probable future needs for capital, and the worse the consequences of a capital shortage, the stronger the balance sheet should be. The goal of the firm is to maintain financial flexibility, which means maintaining adequate reserve borrowing capacity (Weston and Brigham, 1990) the lower the firm's finance flexibility the higher is the firm's financial risk.

3.6.5 Business and financial risk

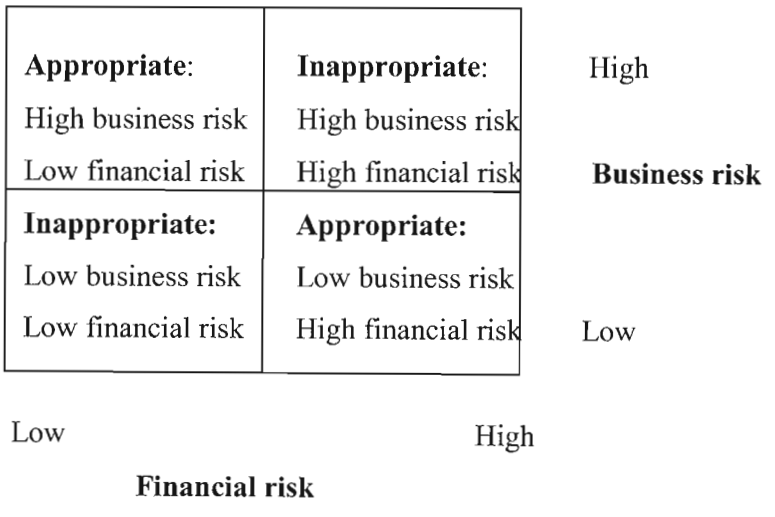
A company's total risk consists of a combination of business and financial risk. The total risk is important since it will determine the total rate of return the investor demands from the company. In order to reach an appropriate total risk, a company's financial risk must be determined in relation to the company's business risk. As stated in Sections 3.5.3 and 3.5.4, the industry and the competitive the environment in which the company operates determine business risk, while financial risk depends upon the capital structure and financial policies adopted by the company.

As risk levels are determined by the volatility of future expected return, a higher leverage level will result in a high perception of financial risk since interest has to be paid as a fixed expense. Conversely, a company, which exclusively uses equity funding, will have a much lower level of financial risk since dividend payments are not an obligation. It is the combined level of risk that is important for the company, and this is a measurement that allows an appropriate business and financial risk to be established.

Based on the criteria given in the figure 3.4, an appropriate combination of business and financial risk is either the lower right corner where the company faces a low business risk and a high financial risk or in the upper left corner where it faces a high business risk and low financial risk. When such a position is achieved, the company's total risk is at a satisfactory level. An inappropriate position is in the upper right corner where the company faces a high business risk and a high financial risk. The company's total risk will be excessively high and its probability of total collapse will increase dramatically.

Another inappropriate positioning is in the lower left corner where company faces a low business risk and a low financial risk. Such company would benefit if it accepted a large financial risk, thus making use of the advantage that come with debt financing, such as low cost of debt which is significantly lower than the required rate of return on equity. A higher financial risk is possible for a low business risk company because it has strong consistent profits and cash flow to cover the fixed payments. However, many such companies would argue that since they are now highly profitable and cash positive they do not need to raise debt financing for their business. This is a dangerous "fat and happy" attitude, which has led to a situation where many companies have been taken over by corporate raiders.

Figure 3.4 Business and financial risk



Source: Ernest & Young Corporate Finance: working model

Figure 3.4 shows the appropriate position regarding business and financial risk in terms of company's total risk.

3.6.6 Management attitude

The last factor to consider when determining capital structure is managerial attitudes. Some managers are simply more aggressive than others and therefore some firms are more inclined to use debt in an effort to boost profits whereas other managers are very conservative and prefer the capital structure that has always been used, even if it is not optimal (Weston and Brigham, 1990).

Empirical studies indicate that the present theoretical models do not provide a precise optimal capital structure because other factors, which are not incorporated in these models, are in a play. Therefore, by taking all the above factors into account, a decision regarding capital structure can be made when evaluating the three case companies.

4 CHAPTER FOUR: THE REAL ESTATE INDUSTRY

This chapter will introduce the conditions under which the real estate industry is operating. Key variables that relate to business and financial risks are analysed within the industry and across the industries. The companies' total risk profiles are presented, which determines the appropriateness of their capital structure

4.1 Historical background

The history of the real estate industry in South Africa has been tainted with socio-economic and politics that characterizes the country. Like any other sector, the real estate industry was affected by the past political regime that had imposed economic, and political power over one sector of the society. Though this industry has developed comparably to other emerging economies, it has been affected by the economic sanctions that South Africa suffered during apartheid era.

The arrival of the political dispensation in 1994 witnessed the removal of the sanctions and re-integration of the country into rest of the world. The New economic policies have been adopted in light of different circumstances to foster the economic growth; promote Foreign Direct Investment; relax monetary policies; promote export and introduce investment and tax incentives all of which are expected to affect different sectors favourably including real estate industry.

4.2 Current trend.

Recent studies indicate that the growth in economic activities in different sectors have had a favorable impact on the real estate industry. The manufacturing or production sector has grown by 18% since 1996. Physical volumes of production have shown a positive year-on-year growth rate since 1999 with 2000 being particularly strong. Finance and business services that drive the commercial market in general continue to ply an increasingly strong value-added role in the economy. Share has been increasing steadily in recent years due to the above average real value added growth of 4.6% recorded from 1996 to 2000.

In terms of sectoral new investment activity, offices have seen an average annual growth rate of 32% since the year 2000. For the same period, retail property grew by 4% while industrial property growth experienced negative at–8% (JHI Real Estate Research, Property Annual Report 2002).

Property investment transaction activity continues to be boosted via the broad market concept of securitisation and listing. As an institutional investor class, investment property exposure in the recent past has generally been reduced due largely to the relaxation of exchange controls and the move from defined benefit to contribution pension funds which has promoted greater liquidity and choice of investment.

For the past three years to 2001, listed property beat all asset classes with an annualized return of 27.9% compared to 23.8% for bonds 11% for equities and 14.4% for money markets. The performance of broad real estate index (including property operating/developing companies, rand-hedge stock and listed property sector) indicates the lower volatility and high recent performance of property compared with the JSE Securities All Share Index.

On the other hand, there is growing market concern regarding certain property fundamentals, particularly growing commercial vacancies and an oversupply of retail property. This combination resulted in a potential loss of rental income from tenants as well as pressure on rental rates and escalations. Again, the listed sector's performance in the recent past is considered by some as unsustainable into the future. This is because of the limited supporting and favorable technical factors- such as a lower interest rate that have served to fuel the market of late rather than underlying fundamentals. The negative impact of interest rate volatility and high inflation are nevertheless posing a threat to the sector stable performances particularly in supporting business where demand is lacklustre (JHI Real Estate Research, Property Annual Report 2002).

4.3 Future prospects

While there are mixed signals regarding real estate industry performance in the future, current trends indicate a further improvement in real estate sector. The number of ongoing new listings, coupled with the desire by most listed fund managers to increase the size and the value of their portfolio is reflective of future industry prospects. Moreover, perceived shortcomings facing the listed property sector relating to size and liquidity are also being addressed via mergers and acquisitions within the sector. This can result in lower gearing together with greater market capitalization, in turn promoting an entity with greater critical mass that will be capable of rising capital for the acquisition of further attractive investment properties. It can be expected that this will continue on the back of a generally positive market response thus far.

Other avenues such as retail tourism, vendor-to-vendor retail and township-to-rural retail are the opportunities presenting themselves to astute retailers and property developers both local and in the Southern Africa region. However, trends in information technology around the world are expected to impact negatively on industrial property. Such technology may include mechanization, Just In Time and falling production continue to affect the industrial sector. This has a direct impact on industrial performance and is felt via rentals and land prices.

The debate around the supply chain management continue to be heard globally – particularly for warehousing space where the zero inventory theory has been somewhat countered by less than perfect scenarios brought about by vagaries in business demand conditions.

In the South African industrial property market, little room for error can be afforded in meeting customers' needs and as such, some kind of "optimum" stock levels, rather than zero stock is deemed necessary. In any event, the logistics/supply situation is generally still quite inefficient, suggesting that companies could run a huge risk by adopting JIT practices. Furthermore, distribution logistics and E-commerce ventures can arguably still spur demand for warehousing and distribution space. The future of distribution and warehousing facilities is therefore still relevant in the South African industrial property market though the long term future is perhaps more difficult to predict.

One area of potential growth in the "new economy" is for data warehousing or storage. Data storage demand is predicted to surge in the wake of September 11 an event that highlighted the importance of security. The demand for data storage facilities internationally could be mirrored by South Africa data storage sector. Predictions are that in short-and medium-term, local storage providers could see significant increases in business as result of new demand. With the drafting of South Africa's telecommunications policy, this also is a trend that could grow in prominence as bandwidth and access costs are reduced. One can reasonably conclude that the future for the real estate industry is bright and this could encourage companies to accept higher financial risk Eprop Research, 2002.

4.4 Operational decisions

One widespread concept of real estate companies is that their value growth and result are governed entirely by the economic cycle, politics, taxes and interest rates. While this view does hold some truth, the companies' current markets, leverage levels, loan structure, maturity spreads, and interest subsidies affect their business and financial risk and thereby their capital structure decisions (Maisel, 1987).

4.5 Industry key variables

The industry key variables in this research would include factors that influence capital structure decisions. In the context of this research, these variables include:

- unlevered beta
- property portfolio,
- leverage level
- equity ratio
- debt ratio
- interest coverage ratio
- interest rate sensitivity
- financial beta, and

These variables do not tell us much individually, but if they are put in a context and related to each other, they could be valuable sources of information when analysing the case companies.

4.5.1 Business risk

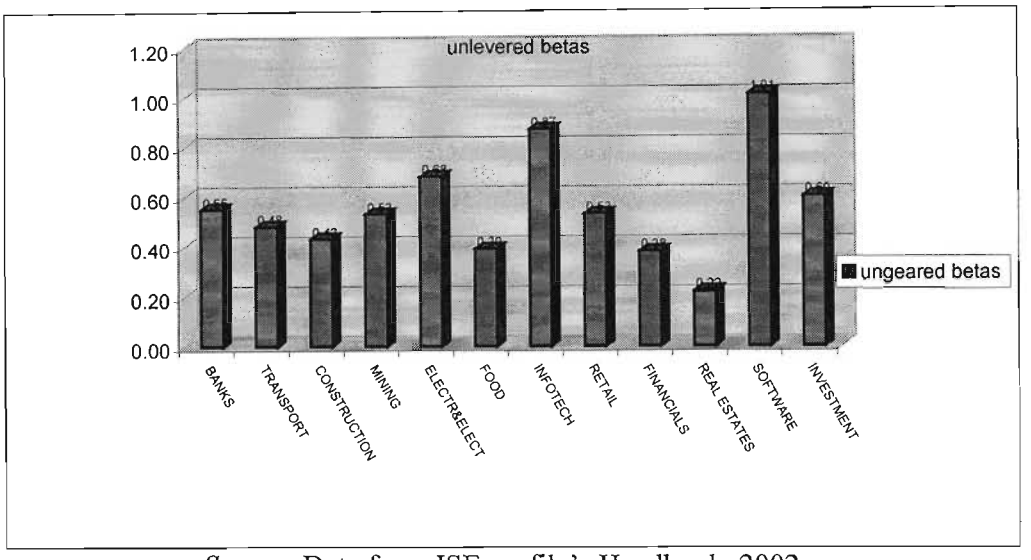
Two measures have been used in determining the real estate companies' business risk. These are the unlevered beta and fundamental factors. The most important fundamental factor is whether a company is focused on residential, commercial or industrial properties. The reason for categorizing the property portfolio is because commercial and industrial properties experience higher rental level risk and thereby a higher business risk. However, residential properties experience low rental level risk resulting in greater stability in operating income and therefore, a lower business risk.

4.5.1.1 Unlevered beta

Figure 4.1 shows the unlevered beta for different industries. We can see that the real estate industry experiences the lowest unlevered beta, and one can therefore conclude that the business risk is low for the real estate industry. The low business risk in the real estate

industry (property segment) may be due to the nature of business, which mainly comprises tangible assets.

Figure 4.1: Unlevered beta for different industries (Appendix iv, page 88)

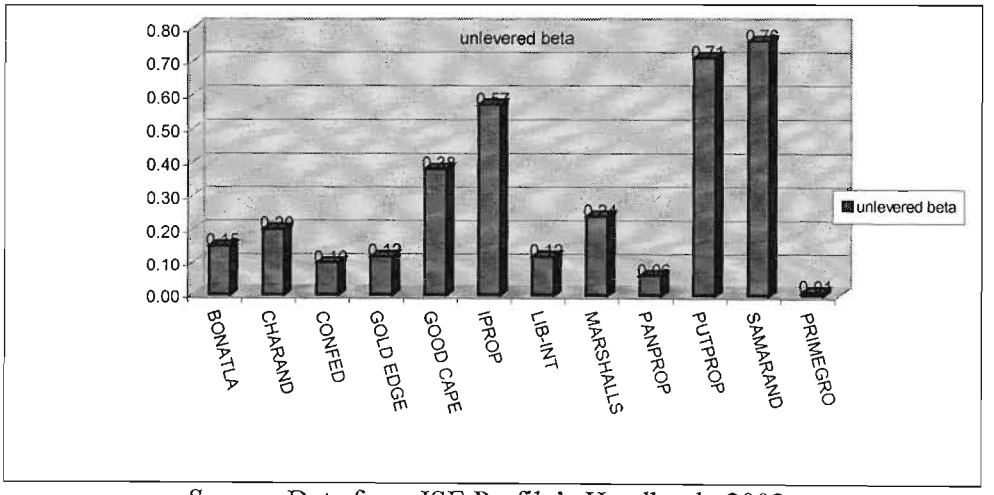


Source: Data from JSE profile's Handbook, 2002

Cadiz Stock Broking Quantitative Research, 2001

Figure 4.2 shows the unlevered beta for different companies within the real estate industry (property). When using unlevered beta as a measure of business risk, Samrand is facing the highest risk followed by Putprop and Iprop. While Premigro, Panprop, and Confed face business risk lower than all other real estate companies in the industry.

Figure 4.2 Unlevered beta for real estate companies (Appendix vi page 98).



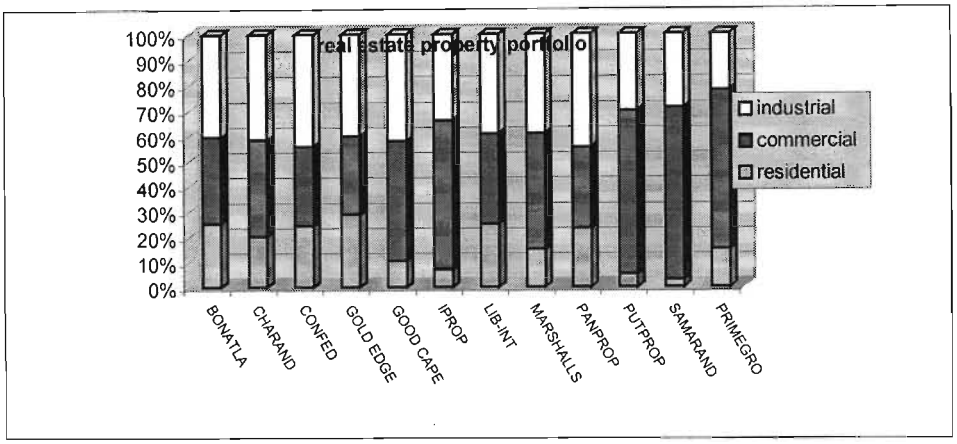
Source: Data from JSE Profile's Handbook, 2002

Cadiz Stock Broking Quantitative Research, 2001

4.5.1.2 Property portfolio

These 12 companies are all pure property companies, made up of residential, commercial and industrial properties (Figure 4.3).

Figure 4.3 Property portfolio in real estate industry



Source: Companies' Annual Reports, 2001

Figure 4.3 shows that Iprop, Premigro, Samrand and Putprop are focused on commercial properties and hold the lowest proportion of residential properties in the real estate industry. They are likely to face higher business risk compared to other companies. While all other companies hold an almost balanced portfolio between commercial and industrial properties, Gold-edge, Bonatla and Lib-Int hold slightly larger residential portfolios in the industry and they are likely to face low business risk.

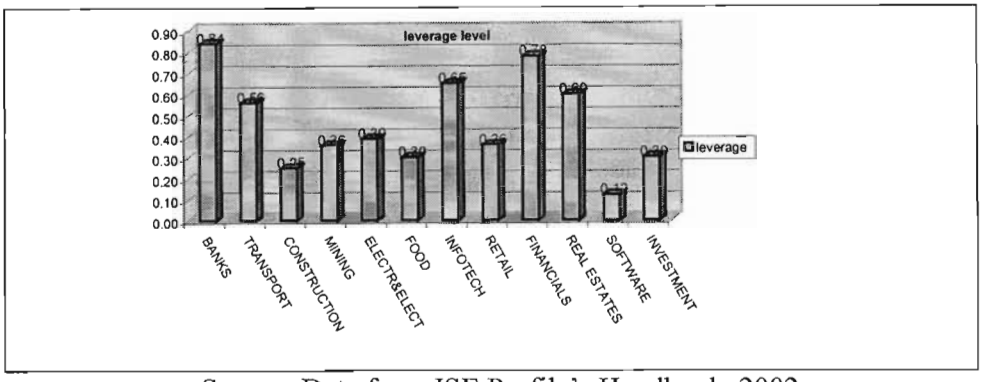
4.5.2 Financial risk

A company's financial risk can be measured in different ways. Four important measures were selected which include leverage level, the debt coverage ratio, the interest rate sensitivity and financial beta.

4.5.2.1 Leverage level

The real estate industry is known for being highly levered compared to other industries. The high leverage level can be explained by the nature of its asset structure. Assets for this industry are made up of properties, which are very tangible and liquid in nature. These properties also are good collateral for loans, which makes it easy for real estate companies to access credit facilities.

Figure 4.4 Leverage in different industries (Appendix iv, page88)



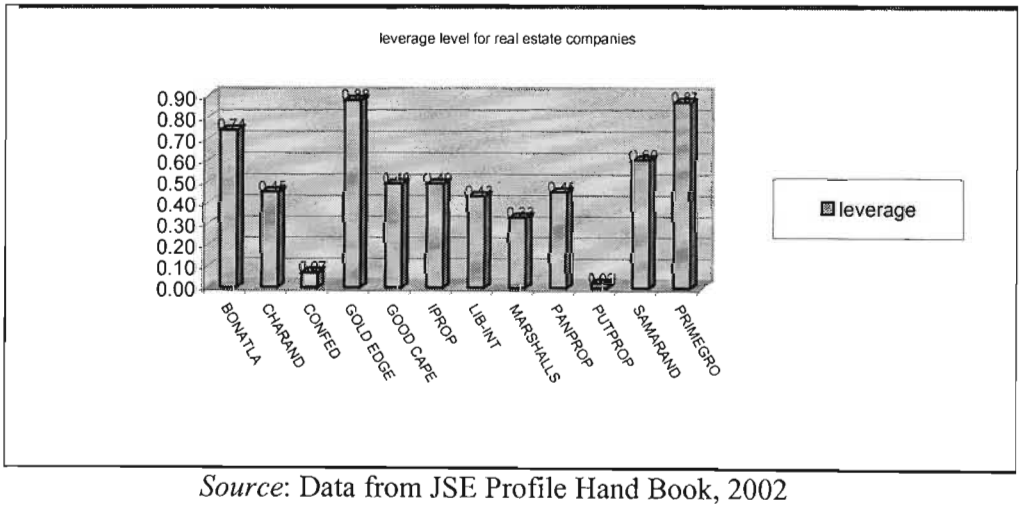
Source: Data from JSE Profile's Handbook, 2002

Cadiz Stock Broking Quantitative Research, 2001

Figure 4.4 indicates that the real estate industry is the fourth highest levered at 60 percent compared to other industries. The Banking sector is leads with 84 percent followed by Financial and Information Technology sectors with 78 and 65 percent respectively.

Figure 4.5 shows the leverage level within the real estate industry. It can be seen that the leverage level oscillates between Putprop's 2 percent and Gold-edge's 88 percent. The average leverage level in the industry is 60 percent using book values of debt as a proxy for market value of debt.

Figure 4.5 Leverage level for real estate industry (Appendix vi page 98).



Source: Data from JSE Profile Hand Book, 2002

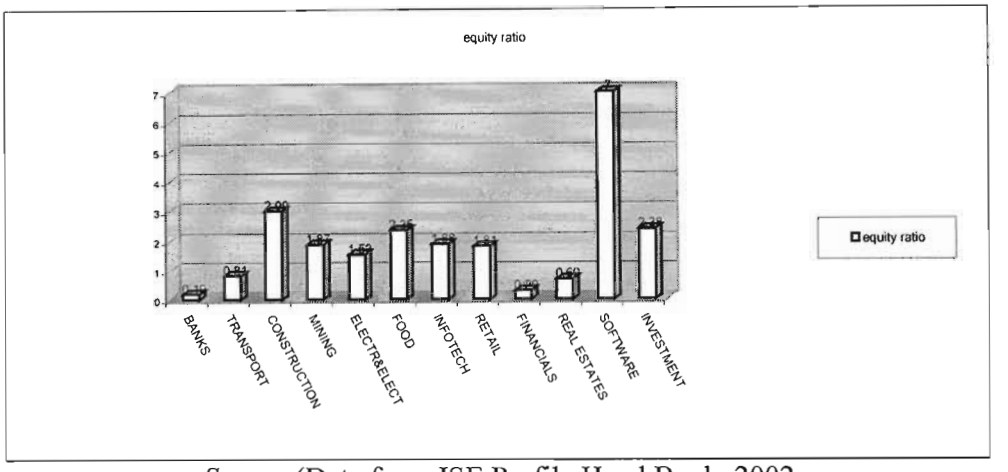
Cadiz Stock Broking Quantitative Research, 2001

4.5.2.2 Equity/debt ratio

Another ratio illustrating capital structure is the equity ratio. This ratio in inversely related to the leverage level. Figure 4.6 shows that the real estate industry experiences the third

financial sectors face equity/debt ratios of 0.19 and 0.29 respectively lower than the real estate industry.

Figure 4.6 Equity/debt ratios for different industries (Appendix iv, page 88).

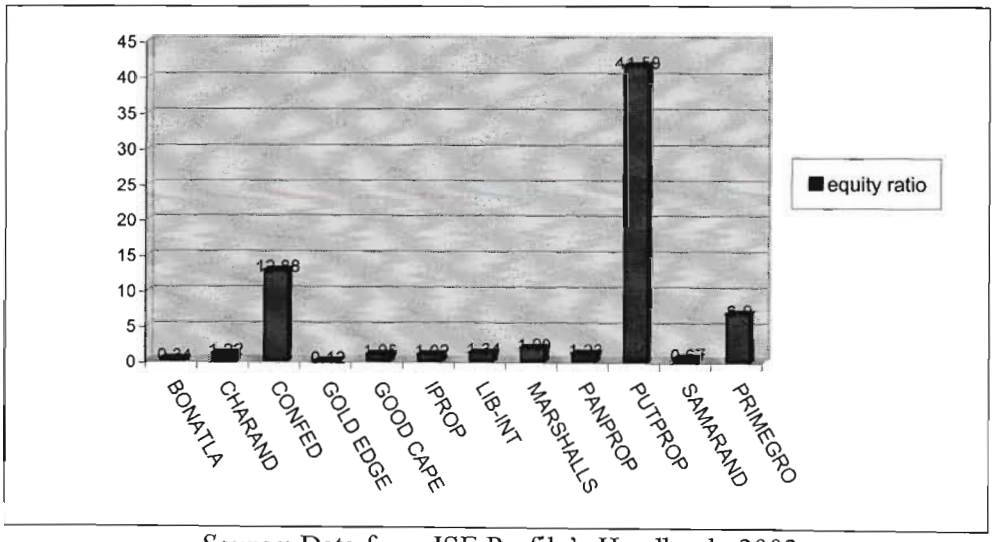


Source:(Data from JSE Profile Hand Book, 2002

Cadiz Stock Broking Quantitative Research, 2001

Figure 4.7 shows the equity ratios within the real estate industry and the trends are similar to what is evident in the shown figure 4.5 leverage level. Again, Putprop is the company with largest equity ratios of 41.59 followed by Confed with 12.88, while Premigro Samrand, Bonatla, and Gold-edge have the lowest equity ratio in the industry. It is worthy to note that Putprop is virtually an all equity followed by Confed whose capital structure deviates substantially from the industry norm.

Figure 4.7: Equity ratios for the real estate industry (Appendix vi, page 98).



Source: Data from JSE Profile's Handbook, 2002

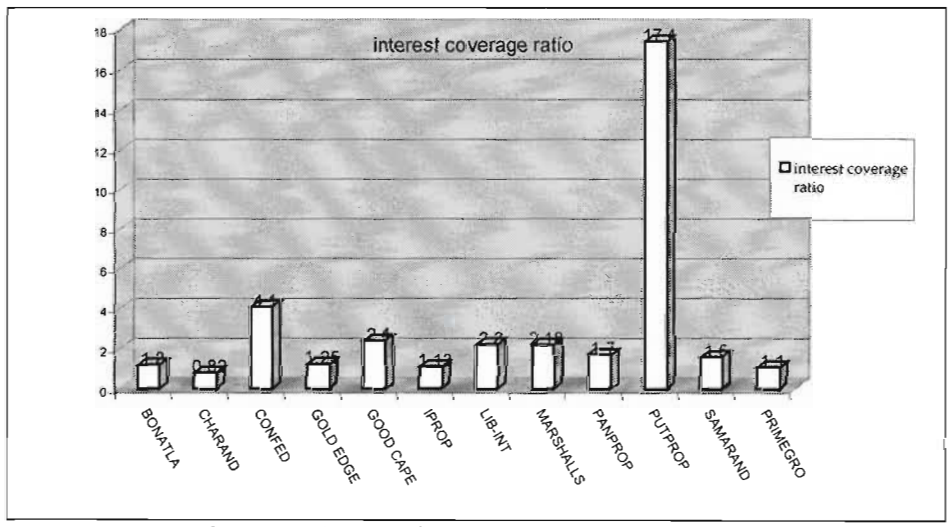
Cadiz Stock Broking Quantitative Research, 2001

4.5.2.3 Interest coverage ratio

The interest coverage ratio demonstrates how well the company manages its debt burden and can be used to predict whether additional debt is appropriate. When the debt coverage ratio is close to 1, the company is just able to cover its financial expenses with its operating income. Figure 4.8 indicate that Putprop has the highest interest coverage ratio in the industry and it can increase its debt without suffering financial distress.

Figure 4.8 Interest coverage ratios for the real estate industry

(Appendix v, page 98).



Source: (Companies' Annual Reports 2001)

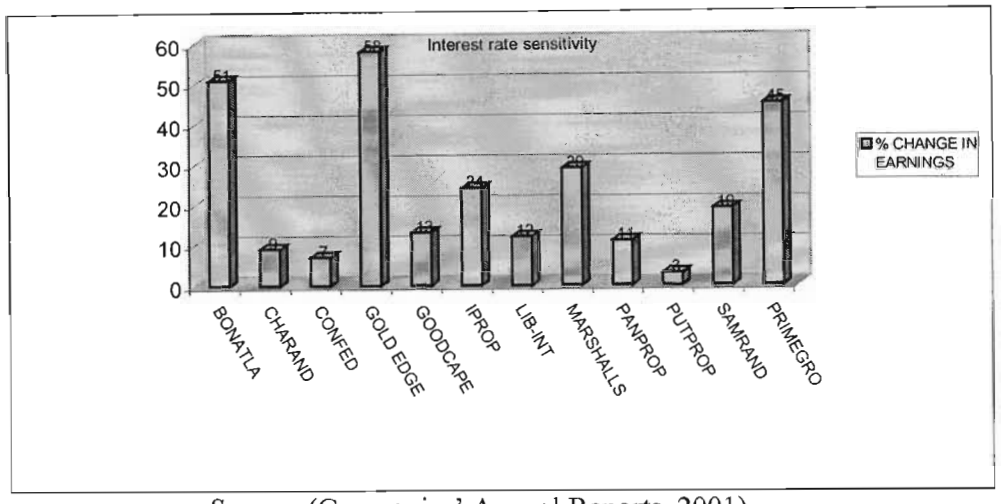
A common phenomenon for real estate companies is that they secure their loan portfolio through interest swaps with different durations, which enable the company to maintain a low interest coverage ratio. The average interest coverage ratio in the industry is 1.78 times. Putprop has the highest interest coverage ratio of 17.4 followed by Confed and Panprop with 4.1 and 2.18 respectively. Samrand has interest coverage ratio of 1.6 slightly below industry of 1.78. The interest coverage level is a measure that is also of interest to creditors. A common measurement for creditors in the real estate industry is to reject interest coverage ratio below 1.25 (Maisel, 1987).

4.5.2.4 Interest rate sensitivity

All the companies within the industry have conducted a sensitivity analysis, which is able to reveal what would happen to the company's operating results if the interest rate

changed by one percent unit. The effect of a one percentage unit change reveals how large the effect is, in relation to the company's profit base before tax.

Figure 4.9 Interest rate sensitivity for real estate industry



Source: (Companies' Annual Reports, 2001)

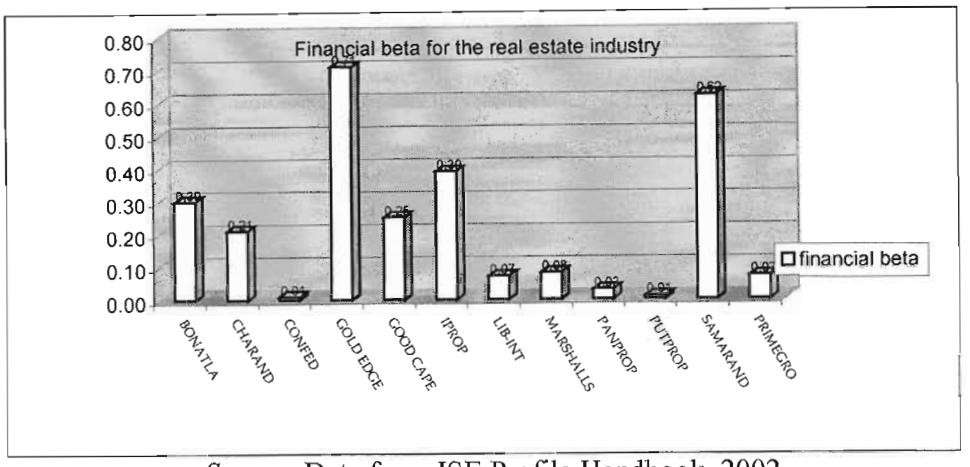
The industry average is 23% but it varies significantly between the different companies: from 5% to 58%. Lib-Int and Samrand have secured a large part of their portfolio with swap agreements and have thereby reduced their sensitivities. Golden-edge, Bonatla and Premigro on the other hand are heavily levered and consequently are more sensitive to interest rate changes.[1]

4.5.2.5 Financial beta

The last measure used when estimating the financial risk is the financial beta. Figure 4.10 indicates that Gold-edge is facing the highest financial beta followed by Samrand whose financial beta is the second largest in the industry. Confed, Putprop, and Lib-Int face lowest financial beta in the industry.

[1] These estimates on interest rate sensitivity were carried out by the companies to assist in internal decision-making and were not available for public use. It was therefore not possible to verify how the result were arrived at, however, these estimates were evaluated based on the individual circumstances of each company, and the results led the researcher to believe that they were reasonably correct.

Figure 4.10 Financial beta for the real estate industry (Appendix vi, page 98).



Source: Data from JSE Profile Handbook, 2002

Cadiz Stock Broking Quantitative Research, 2001

4.6 Businesses and financial risk

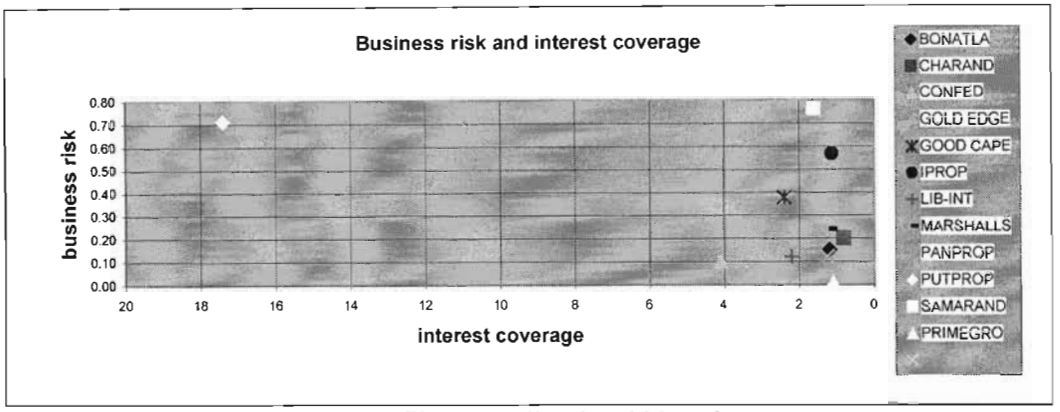
A comparison of two different measures of financial risk is undertaken in order to determine whether companies' capital structures are appropriate or inappropriate. The measures of financial risk used are the interest coverage ratio and the leverage level. The choice of these two measures is made because they are commonly used in the real estate industry for determining financial risk. However, other measures namely equity ratios and financial beta could also be used the same way and would lead to the same conclusion except that in same cases interest rate sensitivity would not yield consistence results.

4.6.1 Business risk and interest coverage ratio

According to Figure 3.4, an appropriate position is either in the upper left corner where the company faces a low business risk and high financial risk or in the lower right corner where the company faces a higher business risk and a low financial risk.

Figure 4.11 Business risk and interest coverage ratio in the real estate industry

(Appendix v, vi, page 88, 98)



Source: JSE Profile's Handbook, 2002 and

Companies' Annual Reports, 2001

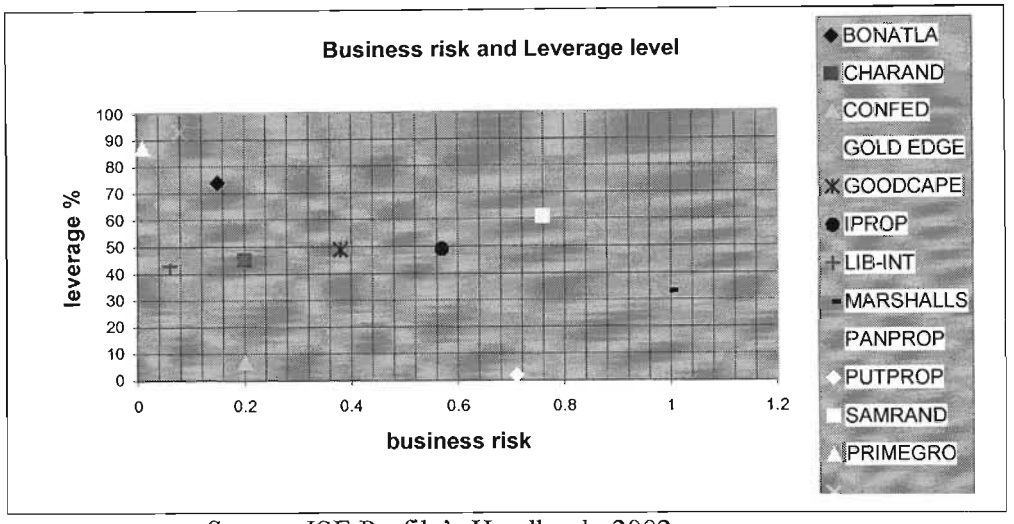
According figure 4.11 above, Putprop with the second highest business risk and the highest interest has interest coverage level in the real estate industry is considered to be appropriately positioned. However, it could still improve its current capital structure by taking more debt as it coverage which is excessively high. Gold-edge experiences an excellent positioning at the lower right corner where low business risk motivates its higher financial risk. Samrand is however, inappropriately positioned at the upper right corner, as it has the highest unlevered beta, with the fourth largest leverage ratio and has interest coverage of 1.6 which is below industry level of 1.78.

4.6.2 Business risk and leverage level

The second measure used to determine financial risk is the leverage level. Figure 4.12 shows business risk and leverage level for the companies in the real estate industry. Gold-edge is again appropriately positioned in the upper left corner. Both Putprop and Samrand are inappropriately positioned. Even though Putprop has the highest business risk, it could still improve its capital structure by taking a little more debt. Samrand has the highest business risk and is levered at an industry average. The company is inappropriately positioned close to the upper right corner and would improve its financial risk by taking little less debt or reducing its business risk.

Figure 4.12 Business risk and leverage level in real estate industry

(Appendix vi, page 98)

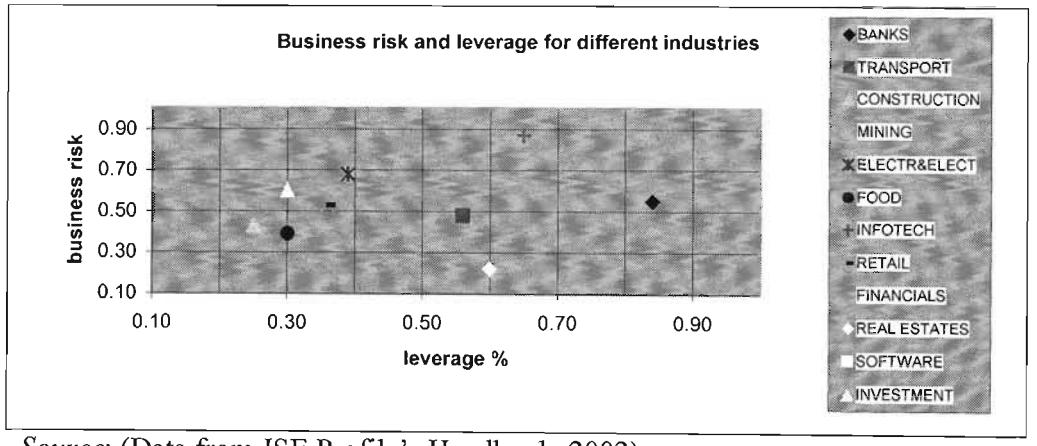


Source: JSE Profile's Handbook, 2002

Companies' Annual Reports, 2001

To get an overview of where the real estate industry is positioned concerning business and financial risk, different industries are compared. As seen in the Figure 4.13, using unlevered beta as a measure the real estate industry is exhibits the lowest business risk, compared to other industries. At the same time the real estate industry is the fourth highest levered compared to other industries. Only the banking, financials, and information technology sectors are leading with 84, 78 and 65 percent respectively. Bearing Figure 3.4 in mind, the real estate industry is close to the appropriate position at the lower right corner, facing a low business risk and relatively high financial risk.

Figure 4.13 Business risk and leverage level for the real estate industry compared to other industries (Appendix iv, page88)



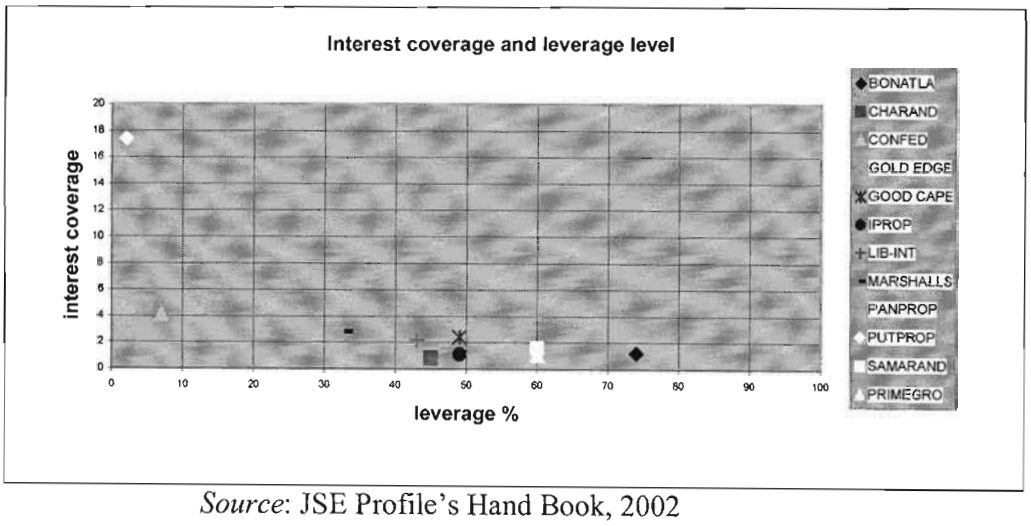
Source: (Data from JSE Profile's Handbook, 2002)

4.6.3 Interest coverage ratio and leverage level

By comparing the companies' leverage levels and debt coverage ratios we can see whether it would be possible for the companies to increase their leverages. Companies that have large debt coverage ratio could increase their leverage level without having to suffer financial distress. For example we can see that Confed and Putprop have the largest debt coverage ratio in the industry (Figure 4.14). These companies could increase their debt without experiencing a low debt coverage ratio, which would be unacceptable. If these two companies increased their leverage level they would increase the value of the tax shield without being exposed to unacceptable financial distress. However, other companies would not be able to raise additional debt without suffering financial distress as they have low interest coverage ratios.

Fiqure 4.14 Interest coverage ratio and leverage level for real estate industry

(Appendix v, vi, page 88, 98).



Source: JSE Profile's Hand Book, 2002

Companies' Annual Reports, 2001

4.6.4. Summary

Even though there are mixed signals about the real estate sectors performances, current trends indicate a further improvement in the sector. The number of ongoing new listings, the desire by most listed fund managers to increase the size and the value of the portfolio is reflective of future industry prospects. The removal of the economic sanctions, reintegration of the country to the rest of the world, the adoption of new economic policies to foster economic growth, the promotion of Foreign Direct Investment, the relaxation of monetary policies, the promotion of export, tax and investment incentives all

are expected to affect this sector favourably. Likewise, other venues such as retail tourism, township/rural retail and data storage demand are opportunities being presented to retailers and property developer in the industry.

The analysis of business risk for different industries indicates that the real estate sector is experiencing the lowest unlevered beta, which indicates low business risk in the industry. Business risk for companies in the real estate sector differs depending on the property portfolio they hold. Commercial properties suffer more business risk than residential and industrial property respectively.

To determine whether a company has set its capital structure appropriately requires consideration of both business risk and financial risk. According to figure 3.4, an appropriate combination of business and financial risk is either at the lower right corner where the company faces a low business risk and high financial risk or in the upper left corner where the company faces high business risk and low financial risk. The analysis of case companies indicates that Putprop has an inappropriate combination of business and financial risk, since the company has higher than average business risk and is facing exceptionally low financial risk due to the higher interest coverage ratio, the low leverage level, and low interest rate sensitivity. Even though the company faces business risk higher than average, the leverage does not have to be the lowest in the industry.

Similarly, Samrand has an inappropriate combination between business and financial risk because the company has both the highest business and financial risk. It would improve its capital structure by taking less debt or reducing its business risk. Unlike Putprop and Samrand, Gold-edge has an appropriate combination of both business risk and financial risk. The analysis reveals that the company has low business risk due to the fact it has lowest unlevered beta in the industry. The company's current financial risk is high because of high leverage level, relatively low interest coverage ratio and high interest rate sensitivity. However, the low business risk indicates that company can maintain the current position since future cash flows are stable and predictable. Gold-edge has positioned itself as a low business risk and high financial risk company, which is an appropriate positioning according to Figure 3.4.

5 CHAPTER FIVE: THE CASE OF PUTPROP

This chapter will present and analyse how this company's capital structure is determined and will recommend any improvement which can be made.

5.1 Introduction

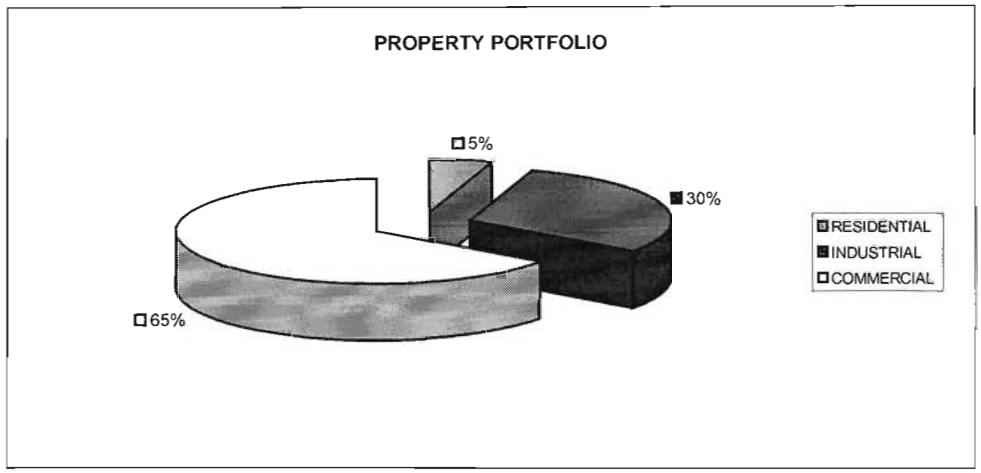
Putprop is one of the listed property companies in JSE and was founded and listed in 1988. The company was established at time when South Africa was at the height of economic and political sanctions. Due to the constraints on external financing, the company adopted the strategy of being strong equity based company, in order to persist at that time and to be able to survive in future in such circumstances. Putprop's business strategy is to acquire and take part in the construction of properties new with higher development potential. They will then add value to these properties and when no further value can be added, these properties are sold off.

Putprop focuses on a local presence in each region in which it operates so as to create a close contact with market. The real estates portfolio is geographically concentrated in Gauteng, Western Cape and Kwazulu Natal. The properties in Putprop's portfolio can be defined as commercial properties comprising both office and retail. Offices are as those building that are used predominantly for office and administration purposes and retail property includes the value centres and community shopping centres. Industrial properties include those properties commonly used as factory, plants and other actual production activities and residential properties include those building for residential purposes.

5.2 Putprop Property Portfolio

The property portfolio in Figure 5.1 indicates that Putprop faces high business risk because it focuses on commercial properties. Commercial properties are more closely tied to GDP and other broad economic indicators and consequently suffer high vacancy rate during high inflation period.

Figure 5.1 Putprop's property portfolio



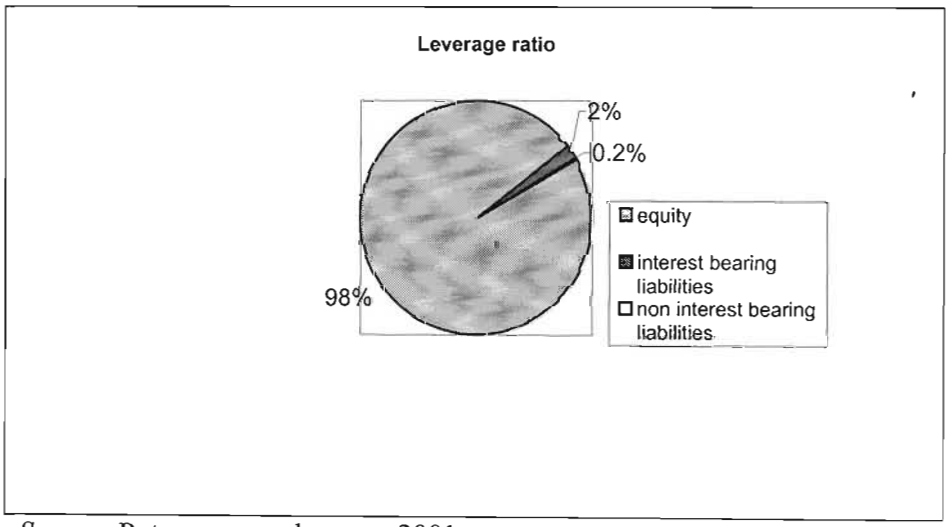
Source: Putprop Annual Reports, 2001

5.3 Putprop's Capital Structure

5.3.1 Leverage Ratios

Putprop is the lowest levered company in the real estate industry, with 2 percent leverage level compared to that of industry of 60 percent (Figure 5.2).

Figure 5.2 Putprop's leverage ratio.

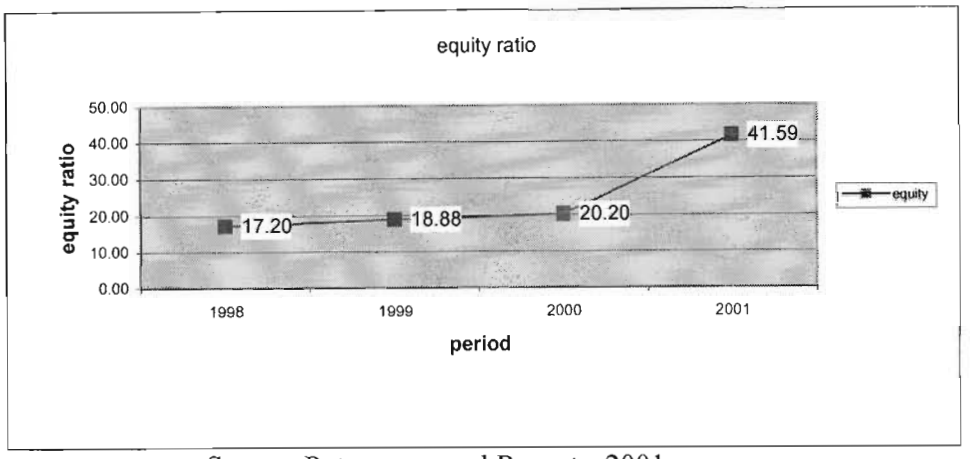


Source: Putprop annual report, 2001

5.3.2 Putprop's equity ratios

Putprop's equity to debt ratio increased from 17.2 to 41.59 during the last three years and the company has the highest equity ratio in industry Figure 5.3 shows.

Figure 5.3 Putprop's equity/debt ratios



Source: Putprop annual Reports, 2001

5.4 Capital structure in the future

The Putprop's goal and target regarding capital structure is to be all equity-financed company and to use non-interest bearing finance as much as possible. Putprop's current equity ratio is 98%, which reveals that the company has reached its target ratio. The company intends to maintain this target in the future. The company management has decided to state their goal in terms of book value instead of market value. The long-term goal of reaching 95% of equity ratio was set five years ago and at that time the book value was identical to the market value of the properties. However, these values are not identical today. The company's CFO urges that using book value is accurate, and if adjusted equity ratio were used instead, Putprop would experience an even more attractive ratio than today. Consequently, the company executives perceive a higher equity ratio as more attractive than otherwise.

5.5 WACC and shareholder value

The CFO does not believe that the current capital structure optimizes the value of the company, nor the target ratio of 95%. An optimal structure for the shareholders would mean a higher debt financing than today. However, he defends current capital structure by saying that it is preferable for the company to keep the higher level of equity financing. The higher equity level allows the company to stay financially flexible and be able to be

in the position of acquiring new properties. The CFO does not believe that a higher leverage company is a proof of a strong company even though the market prefers a low WACC. He further believes that a heavily debt financed company, sooner or later, will experience a debt burden too large for the company to survive.

5.6 How Putprop determines capital structure.

As it can be seen, the company has positioned itself as the least levered company in the real estate (property) industry and it's current equity ratio of 98 percent has exceeded its goal of 95 percent. Now the question is, how does the company decide upon its capital structure? Is there any model used in the process? What factors are important when making capital structure decisions?

By interviewing the company Chief Financial Officer (CFO) it was found Putprop does not use any of the model outlined Chapter 3 when they decide upon their capital structure. The argument for not using any model is that they are not familiar with them. Neither have they estimated the cost of bankruptcy, which is necessary for using the Trade Off Model. The closest the company has come to calculating the cost of bankruptcy is to estimate the worth of their assets if they were sold off. However, instead of using any models, there are several factors the company considers when they make their capital structure decisions. These factors are the strength of the assets, history and debt coverage ratio.

5.6.1 Strength of financial assets

The company mortgage level of their properties is important when deciding on capital structure. Putprop prefers being a strong property company in the real estate industry with a strong balance sheet. Keeping strong assets allows the company to stay financially flexible and minimizes the financial risk.

5.6.2 History

History also plays an important role when Putprop decides its capital structure. When the company was listed on the JSE in 1988, it laid out principle guidelines regarding their long-term strategies and goals. These strategies and goals were decided amid the height of the economic and political sanctions that faced the country. By keeping a strong equity base, the company wanted to be prepared to sustain and survive in such an environment if it persisted.

5.6.3 Interest coverage ratio

The interest coverage ratio is another factor that the company takes into account in deciding its capital structure. The ratio indicates how sensitive it is to financial risk and whether a possibility exists to increase its leverage level.

All the above factors are taken into account when the company decides its capital structure. However, the CFO argues that the most important factor is the history. Further findings regarding the company capital structure are that it would consider changing its capital structure if the tax rate is changed. The company does not think in terms of business risk when it decides upon its capital structure, though it perceives the business risk as higher compared to other companies in the industry.

5.7 Analysis of Putprop's capital structure

There are several factors that need to be taken into account when determining an optimal capital structure. These factors include:

- make maximum use of the tax shied, which means using debt financing as long as the debt burden does not constrain the company;
- practical limitation to debt financing must be investigated, For instance, does the company have an acceptable debt coverage ratio?;
- business risk should be established. Knowing the level of business risk will assist in estimating an appropriate financial risk;
- ability to cope with current financial and future financial risk; and
- determining the effect the leverage would have on WACC and shareholder value.

5.7.1 Making use of the tax shield

The company showed a substantial operating profit for years 1998 to 2000 compared to 2001, which supports the argument for making use of tax shield to the maximum. A large debt financing will also reduce the company's WACC, which in turn will increase the value of the company, according to Copeland and Weston (1992). According to the Trade- Off Theory, debt financing should be used as long as the gain from the tax shield exceeds the cost of financial distress. There are many pieces of evidence indicating that the company has not yet reached the trade-off level, as seen in the Figure 4.5. Putprop is the least levered company in the industry and this gives one reason to believe it has not reached its trade-off level. The interest coverage ratio further supports this view since it is unnecessarily high (Figure 4.8). To find an appropriate leverage level, the analysis of the

company business risk and financial risk is undertaken. However, it is important to establish if there is any practical limitation to acquire additional debt.

5.7.2 Limitation on borrowing

At the current leverage level, the company experiences no problem concerning additional borrowing. The reason for this is that they are lightly mortgaged and the properties owned are excellent collateral. The company has a leverage level of 2% and could increase its borrowing at least to the level of industry average of 60% without experiencing a higher interest rate. Even if they could only borrow above industry average, the interest rate would only raise few basis points. It is reasonable therefore to conclude that there is no practical limitation for the company to take on additional debt with its current capital structure. Since there is no practical limitation on debt financing, the appropriate leverage level depends on the company's business risk.

5.7.3 Business risk

Three measures have been used to establish the company's business risk: the industry average; the unlevered beta and other factors that could cause variations in future earnings. None of these factors provide a perfect measure of business risk alone. However, when the results from each of these measures are combined, a good estimation of business risk can be established.

5.7.3.1 Industry leverage

Figure 4.4 shows the leverage level for different industries. The real estate industry is the fourth largest levered at 60 percent average. Though the industry is fourth highest levered compared to other industries, it is not as highly levered as one would expect since real estate presents the excellent collateral assets against which banks and other financial institutions will lend money. However, if the present industry leverage level can be considered as the industry norm, then one can safely assume that market perceives this industry as a risky one.

On other hand, others reasons that might explain this observation, are for instance: perceived shortcomings facing listed property relating to:

- size;
- liquidity;
- sentiment about a limited supply of quality stock underpinned by quality properties;

- under capitalization (less than 1% of 13billion of the total JSE market) of listed property sector; and
- a growing market concern over commercial vacancies and loss of rental income from the tenants and increased pressure on rental rates (JHI Property Report, 2002)

5.7.3.2 Unlevered beta.

Figure 4.2 shows that Putprop is facing an unlevered beta of 0.71, which is the second largest in the industry. The higher unlevered beta indicates that Putprop is facing a larger business risk compared to other companies in the real estate.

5.7.3.3 Fundamental factors that cause variation in future earnings

- *Focus on commercial properties.* The company portfolio consists of commercial, industrial and residential properties. The higher concentration in commercial properties (Figure 5.1) increases the company business risk due to the volatility in commercial property market. Unlike commercial rents, which are more closely tied to GDP and other broad economic indicators, residential rents are driven by household disposable income and inflation as well as normal market dynamics. Residential property is considered to give excellent return on investment and carries a lower risk than commercial property. On the other hand, broad economic indicators similar to those that affect commercial properties also affect industrial property. However, industrial property suffers fewer vacancies compared to commercial properties. It can be observed that Putprop holds less residential and industrial properties, which indicates the reason why it has second largest business risk in the industry.

- *Rent out level.* The company sells off properties where a maximum rent out level has been reached and then acquires properties where the rent out level has not yet reached a maximum. This strategy increases the business risk because of price dynamics in the property market.
- *Rental prices* can be seen as fairly stable and are more likely to increase than decrease due to favorable economic forecasts in the future. Presently commercial rental prices are under pressure because of market oversupply, especially in the retail property market and recent inflation causing high levels of commercial vacancies.

5.7.4 Financial risk

Four indices for estimating financial risk have been established. The leverage level, the interest coverage ratio, financial beta and interest rate sensitivity.

5.7.4.1Leverage level

Figure 4.5 shows that Putprop is the least levered company in the industry. The company leverage level of 2% should be compared to the industry average of 60% and the company equity ratio of 41.59 should be compared to the industry average of 0.69 (Appendix vi, page99)

5.7.4.2 Interest coverage ratio.

The company interest coverage ratio of 17.4 is the highest in the industry, as observed in the Figure 4.8. The company does not show any sign of financial distress and the higher level of leverage can be accepted. A debt coverage ratio of 1.25 is traditionally set as a minimum ratio that creditors will accept (Maisel, 1987). Based on this argument, Putprop could increase its current interest expense to the extent of maintaining the industry norm of interest coverage ratio of 1.25. If the company were to maintain interest coverage ratio at 1.25 it would be able to increase its current leverage level. The increase in leverage level would decrease company WACC, which in turn will increase value of the company (Copeland and Weston, 1992)

5.7.4.3 Financial beta

The company's financial beta is .01 (Appendix vi, page99), which is approximated to beta of zero when compared to the industry financial beta of 0.17.

5.7.4.4 Interest rate sensitivity

A sensitivity analysis is used to see how exposed Putprop is to interest rate changes. The analysis reveals that a one-percentage unit change in borrowing would change the profit before tax by 3 percent. The company is not easily affected by interest rate changes because of its low leverage level. For the industry on average, a one percentage unit change in interest will cause a fall in profit before tax by 20 percent. This further indicates the extent to which the company is protected from interest volatility as it compares far more favorably than other companies.

5.7.5 Coping with financial risk

The company is not worried about its ability to raise new capital if new investment opportunities occur, since its properties are less mortgaged. The company stays financially flexible by taking virtually no financial risks. The company is characterized by maintaining sustainable earnings and a large portion of these earnings have been retained in the business as part of the strategy to build a strong equity base. This strategy is expected to continue, which will further increase the future equity base. Consequently, the company is considered to be strong, with virtually no limitation to capitalizing on any new opportunities.

5.8 Conclusions

5.8.1 How Putprop determines capital structure

The conclusion regarding how the Putprop determines its capital structure is that it does not use any models explained in Chapter 3. The reason is that they are not familiar with these models. Instead of using these models, the company takes several fundamental factors into account. The company analyses each fundamental factor individually and from these separate analyses, an overall picture regarding a capital structure decision is made. The most important fundamental factor when the company's capital structure decision is made is to sustain a strong equity base. The reason is that the company was established at the height of economic and political sanctions under which South Africa was placed and consequently the company long-term goal of high equity ratio was determined in order to survive in such an environment.

5.8.2 Improvement in Putprop's capital structure.

From the above analysis one can reasonably conclude that the company's leverage level is too low. This conclusion is based on the fact that it has an inappropriate combination between business and financial risk. The business risk analysis reveals that the company has a higher than average business risk, this is due to the fact that company has the second highest unlevered beta in the industry. Further, the company's fundamental factors also indicate a higher business risk. Again, the company is facing an exceptionally low financial risk due to the higher interest coverage ratio, the low leverage level and low interest rate sensitivity. Putprop's position as can be seen in Figure 4.12, is inappropriate, according to figure 3.4. Even though the business risk is higher than the average, there is no reason why the leverage has to be the lowest in the industry.

Another argument supporting an increase in leverage level is based on the Trade-Off Model. The company made a profit of R29, 914 million in 2001, which is a strong argument for using the tax shield to the maximum. Putprop is a financially strong company based on its high interest coverage ratio, and low interest sensitivity, but they have chosen not to take on a higher leverage. It is proposed that it would be theoretically possible for the company to increase its leverage, without suffering financial distress.

The company has not tried to calculate its trade-off level, where debt should be accepted as long as the gain from the tax shield exceeds the cost of financial distress, which according to the Trade-Off Model is the point of optimum capital structure. It should be noted that the company is aware that a higher leverage would increase the theoretical value of the company, even though they prefer not to use debt financing since the strategic goal regarding capital structure states a preference to be an equity financed company.

6 CHAPTER SIX: THE CASE OF GOLD-EDGE

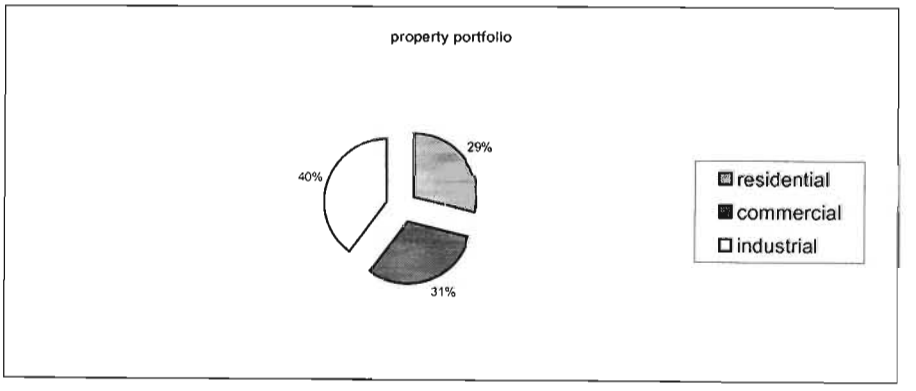
This chapter will present Gold-edge and its capital structure, analyze how company capital structure decisions are made and determine whether any improvement is possible.

6.1 Introduction

Gold-edge is one of the real estate companies listed on the Johannesburg Stock Exchange (JSE) in South Africa. The business of the company consists of acquiring, building, managing and selling properties. The company was founded in1997 and listed on the JSE 1998. Currently the company is active in the major three areas in South Africa, which are Gauteng, Cape Town and Durban. The company geographical location decisions are made with intention of capitalizing on the growth potential of properties with high liquidity.

The company's property is divided into industrial, commercial and residential properties as Figure 6.1 shows. The portfolio is dominated by industrial properties, which represent about 40% followed by residential and commercial properties with 31% and 29% respectively. Though the company portfolio is currently concentrated in industrial properties, the future company strategy is to make long-term investments in residential properties since it is a safe and reliable segment. They believe in keeping good customer relations which give them an incentive to be customer- oriented and have an effective property management strategy.

Figure 6.1 Gold-edge property portfolio



Source: Gold-edge Annual Reports, 2001

The Figure 6.1 above indicates that Gold-edge hold a large proportion of its portfolio in industrial and residential properties. These portfolios suffer less market volatility and

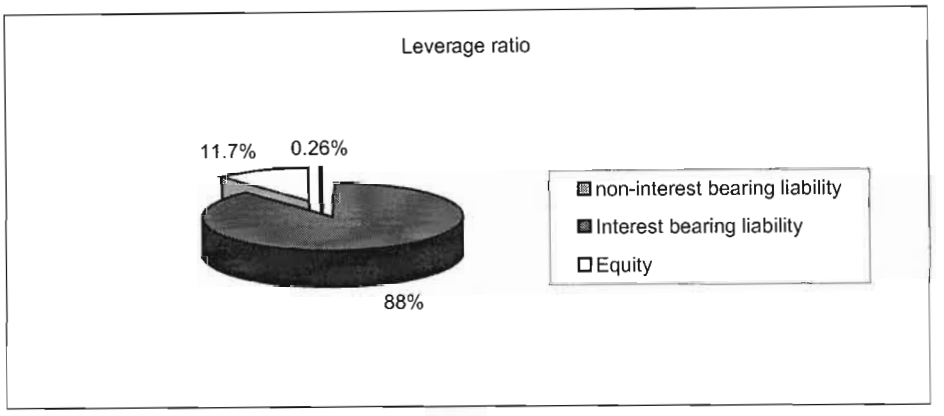
consequently the company has less business risk compared to other companies in the real estate industry.

6.2 Gold-edge capital structure

6.2.1 Leverage level

The company has the highest leverage level in the real estate industry, with 88% in 2001, (refer to Figure 6.2). The company's leverage level can be compared with real estate industry average of 60 percent.

Figure 6.2 Gold-edge leverage ratio



Source: Gold-edge Annual Reports, 2001

6.2.2 Equity ratio

The company's current equity ratio is 11.7 percent (Figure 6.2) and is the lowest in the real estate industry.

6.3 Capital structure in the future

The company's quantitative guideline and goals concerning capital structure are to have an equity ratio not more or less than 15%, though they intend to increase this ratio in the future to a minimum of 20%. However, this equity ratio would be adjusted depending on the prevailing circumstances, preferably to maintain it in accordance with book value of properties.

6.4 Strategies for capital structure.

The company's strategy to achieve its capital structure goal is to mortgage each property as much as possible, and use the maximum leverage possible. Gold-edge's properties are currently mortgaged up to 89% using the book value and 72% using the market value of

the properties. The mortgage norm in the industry is 75% using book values. In other words, the company's current capital structure is above industry norm.

6.5 How Gold-edge determine capital structure

This section intends to look at how the company decided upon its current capital structure and if any models have been used. Further, it will look to the important factors Gold-edge considered when making the capital structure decisions.

When interviewing the CFO it was evident that no specific models are used when capital structure decisions are made. The argument for not using any of the models is that they are not familiar with them. Also the company has never estimated the cost of bankruptcy, which is necessary for using the Trade-Off Model. The argument for not estimating the bankruptcy cost is that they simply do not think in terms of going bankrupt. However, instead of using any models, there are several factors that the company considers when making capital structure decisions. These factors are:

- business risk,
- financial risk,
- interest rate,
- management attitude,
- rental income and interest expense,
- strength of balance sheet asset

6.5.1 Business risk

According to the company's CFO the company business risk is considered to be most important factor when the capital structure decision is made. He argues that a low business risk motivates a high leverage and believes his company has lower business risk compared to its competitors because the company enjoys high rental level and has its properties in the attractive areas. However, he admits that rental from commercial properties has been volatile due to high vacancies coupled with competitive rental pressure from clients as the result of an oversupply of commercial properties in the recent past.

6.5.1 Financial risk

The company's current financial risk is also important when determining capital structure. The CFO perceives the company's financial risk to be extremely high, but he does not see

that as a threat. He further states that the higher financial risk is justifiable because of a low business risk

6.5.2 Interest rate

To find an appropriate leverage level, the company uses simulation to examine the effect that changes in the interest rate will have. The simulation takes into account the interest rate and the borrowing levels, and how those variables would affect the company financial situation. A sensitivity analysis is also conducted, which provides the company with information about interest rate movements.

6.5.3 Management attitude

Traditional is the managerial attitude that further influences capital structure decisions. The company has traditionally been a highly levered company, which is used as norm when they decide their leverage level.

6.5.4 Rental income and interest expenses

Rental income and interest expense are compared when deciding upon the appropriate leverage level and to be certain that the fixed costs are not too large.

6.5.5 Strength of the balance

The company evaluates how strong the asset side of the balance sheet is. The stronger the asset side the higher the leverage that can be accepted. The CFO believes the company has a strong balance sheet mainly because of its unmortgaged properties in high attractive nodes in Gauteng and Cape Town.

6.5.6 Borrowing

A last point regarding their capital structure decision is not a factor but a strategy. The company simply borrows as much as possible when they enter into a new investment and this keeps the company capital structure dominated by a higher debt level.

All of the above factors are taken into account when the company decides on an appropriate capital structure, since at the moment they perceive their business as low risk higher financial risk can be motivated.

According to the Gold-edge CFO, the size of the tax rate does not influence the company's decision regarding capital structure. The size of the profit is also irrelevant

when they determine their capital structure. Profit will only affect capital structure in the sense that the profit will increase equity, which will change the balance sheet debt and equity (assuming the dividends are kept constant)

6.6 Analysis of Gold-edge's capital structure

There are several factors that needed to be taken into account when determining an optimal level of capital structure. These factors include:

- maximum use of the tax shield, which means using debt financing as long as the debt burden does not constrain the company.
- practical limitation to debt financing must be investigated. For instance, does the company have acceptable debt coverage ratio?
- establishment of the company's business risk, knowing the level of business risk will assist in estimating an appropriate financial risk;
- ability to cope with current financial and future financial risk should be assessed; and
- determining the effect the leverage would have on the company's WACC and shareholder value.

6.6.1 Making use of tax shield

According to the Trade-Off Model, a company should try to make maximum use of the tax shield that comes with debt financing. A crucial assumption for benefiting from the tax shield is that the company is making a profit. Gold-edge has been making a profit for the past three years, therefore this provides a compelling reason for the use of the tax shield to the maximum. Presently the company is the highest levered in the industry and this could possibly imply the use of the tax shield as the model suggests.

The Trade-Off Model advocates that the debt financing should be used as long as the gain from taking the extra debt exceeds the cost of financial distress that the extra debt brings. To investigate whether their current leverage level is optimal the analysis of business and financial risk is undertaken, but first, it needs to be established if there is any practical limitation to acquiring additional debt.

6.6.2 Limitation to borrowing

There are almost no practical limitations for the company to borrow money. The market conditions facing the company are good and according to the company Chief Financial

Officer, the company still has borrowing capacity, partly due to the fact that they have established a long-term close relationship with their bank and they have not used up their entire credit limit. Creditors are willing to extend borrowing facilities to the companies in the real estate industry provided that the company concerned has interest coverage ratio of at least 1.25 (Maisel, 1987). Presently the company has the minimum interest coverage ratio of 1.25 and has mortgaged 87 percent of its assets more than industry norm of 75 percent. Therefore, one can reasonably assume that it has reached the maximum borrowing capacity beyond which any additional financing will be accepted at extra borrowing cost which will be higher than the current borrowing interest rate. Even though the company has established a good relationship with its bank, from practical viewpoint one can conclude that it has reached its maximum borrowing capacity.

6.6.3 Business risk

Three measures have been used to establish the company's business risk: the industry leverage, the unlevered beta and other factors that could cause variation in future earnings. None of these though, provide a perfect measure of business risk alone. However, by combining the results from each of these measures, a good estimation of business risk can be established.

6.6.3.1 Industry leverage

Figure 4.4 shows that the real estate is levered at 60%, and is the fourth highest levered industry compared to other industries. According to theory, a higher leverage level in the industry is a sign that the industry is facing a low business risk (Grundy and Ward, 1996). This is exactly what is observed in the real estate industry, and one can assume that the industry faces a low business risk.

6.6.3.2 Unlevered beta

Figure 4.2 shows unlevered beta, which indicates the business risk. One can see that Gold-edge is facing the lowest business risk compared to other companies in the industry. However, the overall unlevered beta in the real estate industry is low compared to other industries. As seen in Figure 4.2, the company faces low unlevered beta compared to their competitors. One can then conclude that the company's business risk is low.

6.6.3.3 Fundamental factors causes variances in the future earnings

- *Rental income.* The company rental income has fluctuated very little in the past. Accurate prediction of future profit can be made and there is a reason to believe that the rental income in future will increase or at least stabilize due to favorable economic and industry fundamentals discussed in Chapter four.

- *Rental level risk.* Another factor related to business risk is the rental level risk, which is the risk that current tenants are likely to move out. For residential properties, the risk does not really exist, since there is great demand for residential housing in the urban areas of the large cities where the company holds properties. For industrial property there is little risk for vacancies compared to commercial properties. According to company's CFO the industrial rental level has oscillated from 93 percent to 97 percent for the past three years and during periods of high inflation the company has been able to pass extra costs caused by inflation on to tenants unlike with commercial properties where such discretion is limited. Gold-edge holds 69 percent of residential and industrial combined and the rental risk for this portion of portfolio is low, this provides the reason for one to conclude that the company income is stable except for small variations due to nature of the commercial property market.

- *Liquid assets.* The company's residential and industrial properties are all located in areas considered to have high market potential, which increases their stability and results in less liquidity risk. The above analysis leads one to conclude that the company is experiencing a lower business risk than its competitors.

6.6.4 Financial risk

Four measures to estimate financial risk have been used:

- the leverage leve
- interest coverage ratio
- the financial beta, and
- the interest rate sensitivity

6.6.4.1 leverage level

Figure 4.5 shows that the company is the highest levered in the industry. The company's leverage and debt-equity is 88 percent and 8.41 times compared to the industry average of

60 percent and 1.46 times respectively. The higher leverage level indicates that the company faces higher financial risk.

6.6.4.2 Interest coverage ratio

The company's debt coverage ration for the past four years can be seen in table 6.1.

6.1: Gold-edge interest coverage ratio.

Year	1998	1999	2000	2001
Interest coverage ratio	**1.72**	**1.67**	**1.02**	**1.25**

Source: Gold-edge annual report 2001

For the past four years the company has experienced an interest coverage ratio above 1.25 the ratio that is acceptable as industry norm. Though the company has been able to remain within an acceptable range on average, it has the third lowest interest coverage ratio in the industry (Figure 4.8), which can be compared to industry average of 1.78. The low interest coverage ration indicates on average that the company is exposed to high financial risk.

6.6.4.3 Interest rate sensitivity.

The analysis of interest rate sensitivity indicates that the company profit before tax will fall by 58 percent in response to a one percentage unit changes in interest rate. The decline in the company profit will be the consequence of its high leverage level. It must be noted that the extent to which the company will suffer is above industry average because of high fixed costs the company has to meet irrespective of its performance.

6.6.5 Coping with financial risk

6.6.5.1 Strategies for financial flexibility

The analysis above indicates that Gold-edge is exposed to substantial financial risk. The company uses two strategies to avoid the likelihood of being plunged into financial distress. The first strategy is "golden eggs" and the second one is to maintain the long term relationship with their bank.

The "golden edge" strategy is to keep the most attractive properties unmortgaged as long as possible. The company calls these attractive properties their "golden edge" properties. If they are ever forced to mortgage the golden edge properties, these properties will be the first to amortize. By keeping the "golden edge" properties unmortgaged, these properties can be used as a buffer if there is an urgent need of capital. This is due to the fact that these properties are considered extremely attractive and liquid.

The second strategy used by Gold-edge to stay financially flexible is to keep a close relationship with their bank. The company works in a long-term relationship where trust is the common denominator between the two parties. It means that the company does not shop around for the cheapest loan like any other competitors do, even if their bank happens to be few basis points more expensive. In return for being a faithful customer, the bank is willing to offer the company new loans even in bad times, when other companies might experience difficulties in raising new debts from banks.

Another danger of being highly levered as this company is that the fixed charge becomes high. The company must be confident that they can keep sufficient cash flow to cover the fixed interest costs. From their debt coverage ratio, one can see that that the income from company operations has managed to cover fixed interest cost on average.

6.7 Conclusions

6.7.1 How Gold-edge determines capital structure

The conclusion regarding how Gold-edge determines its capital structure is that it does not use any of the models explain in chapter three. The reason is that they are not familiar with models and that models are too technical to use. However, one notices that the company follows the Trade-Off Model, though unintentionally. This is due to the fact that the company makes the maximum use of the tax shield, since they are the highest levered in the industry. Again, the company has estimated the financial risk of adding more debt as being too large, just as the Trade Off Model states. A higher Leverage would certainly mean a higher risk of bankruptcy and an increase of financial distress. From the above argument one can see that the trade off model is unintentionally in use, which takes into consideration the benefit of tax shield, and the cost of financial distress. Similarly, the company takes several fundamental factors into account and every fundamental factor is analyzed and the general picture regarding their capital structure is then created.

The most important factor for Gold-edge when deciding on an appropriate capital structure is business risk, which is a starting point when they determine leverage level. The company argues that the lower the business risk, the higher the leverage level that can be accepted. The company perceives the business risk as low based on its high rental level and the fact that the properties are located in areas where the potential for growth and demand is high. The company perceives its business risk as low, and this allows them to

take a high leverage. Another important factor is tradition. Gold edge has historically been a high levered company, which they use as their argument to justify their high leverage level in the future. This means that they have a tendency to use historical data when determining current capital structure.

6.7.2 Improvement in Gold-edge's capital structure.

From the analysis one can conclude that Gold-edge's capital structure is optimal or close to optimal. This conclusion is based on the fact that the company has an appropriate combination of business and financial risk, and that they make maximum use of tax shield and deal with high financial risk in an appropriate way. The analysis reveals that the company has a low business risk due the fact that it has the fourth lowest unlevered beta in the industry. Other factors that support the company low business risk are the location of properties in areas with a high potential for growth and demand. The company's current financial risk is high due to the high leverage level, relatively low interest coverage ratio, and higher interest rate sensitivity. Gold-edge has positioned itself as a low business risk and high financial risk company as seen in figure 4.11 and 4.12, which is an appropriate positioning, according to Figure 3.4.

Gold-edge's interest coverage ratio indicates that the company is just at an industry norm, but below industry average. However, if any additional debt were accepted the operating profit might not be able to cover fixed interest expense, thus putting the company in financial distress. The present interest coverage can be maintained with the current leverage level provided the company's business environment does not change to affect company's low business risk and the company continues to maintain its "golden egg" strategy and close relationship with the bank.

It is reasonable to argue that the current leverage level is appropriate, since the present cash flow is large enough to cover fixed interest expenses. The low business risk further indicates that the company can maintain its current position since future cash flows are stable and predictable. Therefore the current leverage level can be maintained in the future without causing financial distress. Lowering the leverage would decrease the financial risk, but at the same time make less use of the tax shield, hence lowering the value of the firm.

This leads one to conclude that the company's current capital structure is optimal or close to optimal and no change should be made.

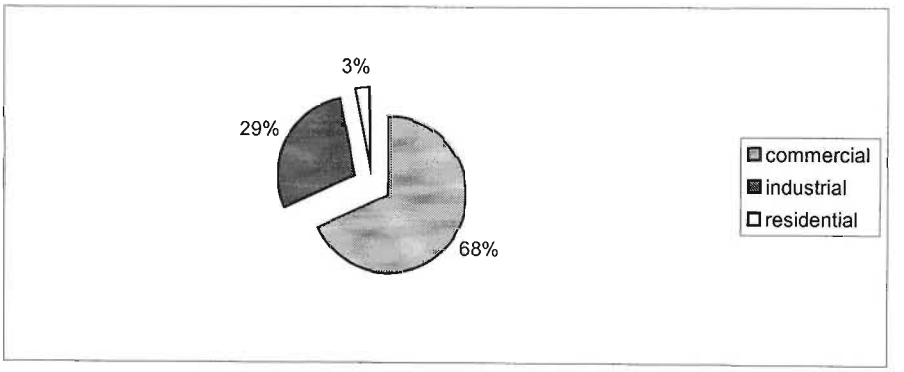
7 CHAPTER SEVEN: THE CASE OF SAMRAND

This chapter will present Samrand and its capital structure, the analysis of how the company determines its capital structure and if any improvement can be made.

7.1 Introduction.

Samrand is one of the real estate companies founded in 1971 and was listed on the JSE in 1987. It is one of the few property companies that managed to survive the sanctions era which country was undergoing when it was listed in 1980s. The principal activity of the company is property investment, property development and the sale thereof. The company property portfolio is concentrated in commercial properties where it holds more than 68 percent of its total portfolio. The company strategy is to continue their current concentration in areas where there is an opportunity for growth and market potential and to develop close relationships with its present customer and new customer base by targeting the business society and local authorities, as well as education and research institutions.

Figure 7.1 Samrand's property portfolio



Source: Samrand Annual Reports, 2001

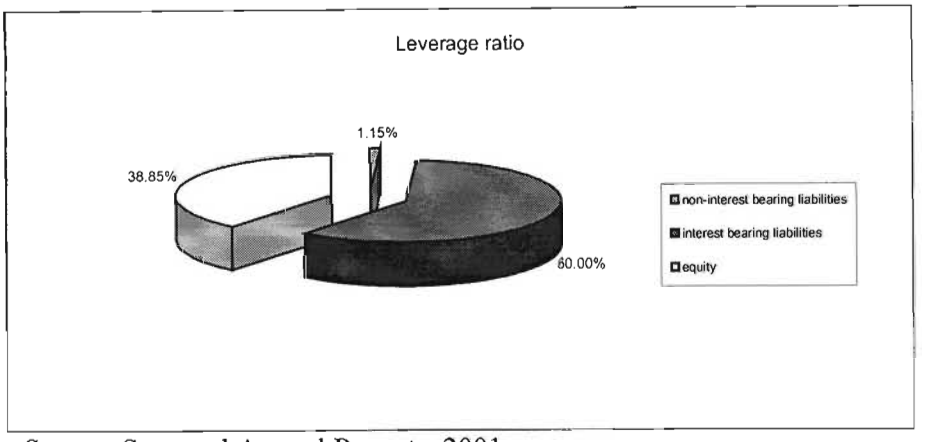
The above figure indicates that Samrand holds a large proportion of its portfolios in commercial property. The commercial property market is more volatile than residential and industrial markets and consequently the company has the highest business risk in real estate industry.

7.2 Samrand's capital structure

7.2.1 Leverage ratios

In 2001 the company reached 60 percent debt financing, (Figure 7.2). This compares well to the industry average ratio of 60 percent.

Figure 7.2 Samrand's leverage ratio



Source: Samrand Annual Reports, 2001

7.2.2 Equity ratio

The company's current equity ratio is 0.67, which is slightly lower than the average equity ratio in the industry of 0.69.

7.3 Capital structure in the future

Samrand's main future goal concerning its capital structure is to maintain the same leverage ratio as that of the industry. Currently the real estate industry leverage ratio is 60 percent, the same as that of the company. Management is satisfied with its existing capital structure, and consequently this capital structure will be maintained in the future.

7.4 How Samrand determines capital structure

This section intends to look into how the company decided upon its current capital structure and if any models have been used. Further, it looks to the important factors to consider when making the capital structure decisions.

When interviewing the CFO, it was evident that no specific models are used when capital structure decisions are made. The argument for not using any of the models is that they are not familiar with them. Also the company has never estimated the cost of bankruptcy,

which is necessary for using the Trade-Off Model. However, instead of using any models, there are several factors that the company considers when making capital structure decisions. These factors are:

- industry leverage
- business risk
- financial risk
- interest rate, and
- management attitude.

7.4.1 Industry leverage

Samrand's most important factor when determining capital structure is leverage level in the industry. The company argues that there is a reason why the industry is positioned as it is. The reason is that all the companies in the same industry face the same business risk and therefore similar capital structure can be used. Because of this argument the company has chosen to position its capital structure close to the industry average level.

7.4.2 Business risk.

The company perceives its business risk as low compared to other companies in the industry and this affects the way the company is financed. However, the CFO commented that the company has had problem with maintaining rental income from commercial properties due to high vacancies and competitive rental pressure from clients as result of an oversupply of commercial properties over the recent years. The company holds 68 percent of its total portfolio as commercial properties (Figure 7.1)

7.4.3 Financial risk

Another important factor that influences Samrand's capital structure decisions is its current financial risk. They perceive their financial risk as lower than their competitors, a perception based on the short term duration of loans, short term refinancing periods and the fact that they have not used all their mortgages. The current mortgage level is 73%, which illustrates that the further mortgage is possible.

7.4.4 Interest rate.

Samrand uses simulation when considering how changes in interest rate will affect the company's operating profit. Another tool that is employed is sensitivity analysis, which

reveals what will happen to the company results if interest rate rises. When the impact of an interest rate is known, an appropriate leverage level can easily be determined.

7.4.5 Management attitude

Samrand's management also relies on historical factors when determining capital structure. They feel it is important to keep an equity base as a buffer for future unforeseen events and to maintain financial flexibility to be able capitalize on new opportunities.

All the above factors are taken into account when the company determines its capital structure. However, the CFO of Samrand argues that the most important factor of all is to follow industry trend with respect to leverage level.

Further findings about Samrand indicate that the tax rate does not influence the company's decision regarding capital structure. The size of the profit is also irrelevant when they determine the capital structure since most of the company's profit will be used for other purposes, such as paying out dividends and renovating the properties they own.

7.5 Analysis of Samrand's capital structure

The analysis takes into account several factors that need to be considered when determining an optimal level of capital structure. These factors include:

- maximum use of the tax shield, which means using debt financing as long as the debt burden does not constrain the company;
- practical limitation to debt financing must be investigated. For instance, does the company have acceptable debt coverage ratio;
- business risk should be established. Knowing the level of business risk, will assist in estimating an appropriate financial risk;
- ability to cope with current financial and future financial risk should be assessed; and
- determining the effect the leverage would have on WACC and shareholder value.

7.5.1 Making use of tax shield

Benefiting from the tax shield is based on the assumption that a company is making a profit. Samrand has been making profit for the past four years, for this reason there should be an incentive for the company to take full advantage of the tax shield. The company is currently protecting their profit from taxes, by using the assessed loss from earlier years, which essentially gives the same protection as debt financing. Even though there is

assessed loss, the tax shield created by the debt financing will be saved to carry the loss forward to a future date. This is an incentive for using debt financing. To investigate whether their current leverage level is optimal, the analysis of business and financial risk is undertaken. Again, we need to establish if there are any practical limitations to the company acquiring additional debt

7.5.2 Limitation to debt financing

During the 1980's when the company was listed, South Africa was subject to economic sanctions and the most companies faced stringent conditions on the level of debt financing available. Today, Samrand can mortgage their properties up to 100 percent for just a few basis points more on their interest rate. However, the current mortgage level for Samrand is 73 percent. There are no restrictions set by the banks regarding Samrand's debt financing level, which means that it is possible for the company to take full advantage of tax shield by borrowing up to 100 percent mortgage level. Since there is no practical limitation to the size of debt financing, the leverage level depends upon the company business and finance risk.

7.5.3 Business risk

Three measures have been used to establish the company business risk: the industry leverage, the unlevered beta and other factors that could cause variation in future earnings. However, none of these factors alone provides a perfect measure of business risk, but using the results from each of these measures, a good estimation of business risk can be established.

7.5.3.1 Industry Average

Figure 4.4 shows that the real estate industry is the fourth highest levered at 60 percent compared to other industries. According to theory, a higher leverage level in the industry is a sign that the industry is facing a low business risk (Grundy and Ward, 1996). As the fourth highest levered industry the real estate industry faces a low business risk.

7.5.3.2 Unlevered beta

Figure 4.2 shows business risk in terms of unlevered beta. Samrand is facing the highest business risk compared to other companies in the industry. The high business risk indicated by unlevered beta is due to the fact that the company holds a larger portfolio in commercial properties, which are characterized by high market volatility.

7.5.3.3Fundamental factors that causes variances in the future earnings.

- *Focus on commercial properties*. Samrand focuses on commercial properties, which brings a higher business risk compared to residential and industrial properties. However, the company's commercial properties are attractive because they are located in large cities and 70 percent of their properties were built or rebuilt after 1986.
- *Few larger customers.* Samrand's five largest rental customer's account for 41 percent of the total amount of contracted rents and the average remaining tenant duration for these properties is 5 years. Having properties focused on a small number of tenant increases business risk, whereas, having the duration of 5 years leases reduces the risk.
- *Unattractive properties*. The company has sold properties in less attractive areas and focused on three potential areas including Gauteng, Kwazulu Natal and Cape Town. According to an analysis conducted by an external consulting firm, Samrand currently has the highest prices of commercial properties in Gauteng compared to other companies in the industry. These fundamental factors indicate that the company is experiencing relatively higher business risk compared to its competitors.

7.5.4 Financial risk

Four measures to estimate financial risk have been used:

- leverage level
- interest coverage ratio
- financial beta, and
- interest rate sensitivity

7.5.4.1 leverage level

Samrand's leverage level is the same as the industry average, and financial risk from a debt point of view can be assumed to equal to that of industry. By keeping the leverage level at the 60 percent the company is merely exposed to financial risk that is at an industry average.

7.5.4.2 Interest Coverage Ratio

The company's debt coverage ration for the past four years can be seen in Table7.1.

Table 7.1 Samrand's interest coverage ratio.

Year	1998	1999	2000	2001
Interest coverage ratio	*0.87*	*0.92*	*1.03*	*1.60*

Source: Samrand annual report 2001.

For the past four years the company has experienced an interest coverage ratio below 1.25, the ratio that is acceptable as industry norm (Maisel, 1987). Although the company has been able to obtain an interest coverage ratio in 2001 above industry norm, it still remains slightly below industry average of 1.78. The low interest coverage ratio from past years indicates how volatile the Samrand income is, which is attributable to volatility in the commercial property market in which the company holds the largest of its portfolio. The low interest coverage ratio illustrates a high financial risk, which means that additional debt financing cannot be accessed unless the company shifts from its current business strategy of focusing on commercial property that has been characterized by market volatility.

7.5.4.3 Financial Beta

The company has the second largest financial beta in the industry of 0.62, only Gold-edge has higher financial beta of 0.71, As seen in Figure 4.10, the higher financial beta indicate higher financial risk.

7.5.4.4 Interest rate sensitivity.

The interest rate sensitivity analysis conducted by the company shows that one percentage unit change in interest rate will cause a decline in income after interest expense by 19 percentages. Even though Samrand's interest rate sensitivity is high it compares favorably with that of industry. Moreover, Samrand has managed to minimize the impact of interest rate sensitivity through interest rate swaps, which resulted in a reduction in financial risk.

7.6.5 Coping with financial risk

The company has managed to obtain an interest coverage ratio above the industry norm of 1.25. This however, might not be sustainable based on past trends. Any small change in operating income or operating expense could alter the result from positive to negative. According to the Samrand CFO, it has been possible to choose such a strategy of low interest coverage due to securing low interest rates, which has been made possible by extended duration and swap agreements. However, the risk of change in operating income and operating expenses still remains, and could change the interest coverage ratio to unacceptable level.

7.7 Conclusions

7.7.1 How Samrand determines its capital structure

The conclusion regarding how Samrand determines its capital structure is that they do not use any model outlined in Chapter three. The reason is that they are not familiar with the models and that are inapplicable in practice according to the company. Instead of using the models, the company takes several fundamental factors into the account. The company analyses each fundamental factor and from these separate findings an overall picture regarding capital structure decision is composed.

The most important fundamental factor for Samrand is the industry average leverage level. They argue that there is a reason that the industry is positioned as it. The reason for similar capital structures within the industry is that the companies face the same business risk, and therefore Samrand aims to position itself close to the industry average. The company's business risk is also an important factor when capital structure decisions are made. The company perceives its business risk as lower than the industry average and consequently they argue that a higher financial risk can be accepted.

7.7.2 Improvement in Samrand's Capital Structure

From the above analysis one can conclude that the company is averagely levered. This conclusion is based on the fact that the company has managed to keep its leverage level to that of the industry average. However, Samrand's current leverage level is considered to be high, based on the fact that company has the highest business risk in the industry even though the company management perceives its business risk to be low. The reasons for concluding that the company has a high business risk is its high-unlevered beta, which is the result of the company strategy of focusing on commercial properties.

Again the company has high financial risk, low interest coverage ratio and high interest sensitivity. Despite, interest rate swaps and extended duration on loans, all tactics which have been used to reduce the company income volatility, the overall trend with respect to interest rate sensitivity and interest coverage ratio are not satisfactory. Samrand is inappropriately positioned as it has a poor combination of both business risk and financial risk as indicated by unlevered beta and financial beta.

One can therefore conclude that, the company's current capital structure is not optimal and changes should be made.

8 CHAPTER EIGHT: OVERALL CONCLUSION

This chapter will present the overall conclusion regarding how the case companies determine their capital structure and if their current capital structures are optimal or if they could be improved.

The findings indicate that none of the companies uses a mathematical model when deciding their capital structure. Neither have they estimated their bankruptcy costs, which is necessary for using of the Trade-Off Model. One can conclude that no theoretical models are used as a basis for capital structure decisions.
However, Gold-edge seems to follow the Trade-Off Model unintentionally. The analysis indicates that they have reached the trade-off point, where adding extra debt will put the company in financial distress. Instead of using theoretical models, all three case companies use certain important key factors as guidelines when determining capital structure. Even though, there are individual variations concerning key factors, a common pattern can be noted. History is the one factor all case companies consider very important when their capital structure decisions are made. From an optimal structure point of view, one could argue that this logic is questionable, since decisions should be based on current data and not historical data. Another interesting finding is that none of the companies has used unlevered beta when estimating their business risk. Evaluation of the case companies' business risk found that a huge variation exist between the companies' unlevered beta and their perception of their business risk.

All three case companies have perceived their business risk as lower than the industry average, and it was proved to be correct only in the case of Gold-edge. It seems that these case companies have underestimated their business risk, or it may be the result of wanting to present the company in favourable light in the interview. Nevertheless, the overall findings support the assertion that the actual business risk is higher than the companies' perceived it but lower than the unlevered beta indicates.

Another finding is that tradition in the real estate industry plays an important role in the capital structure decision process, a trend that was observed in all three case companies. Gold-edge has always been highly levered company, whereas Putprop has been a strong equity-based company something they both use as a guideline when they determine future

capital structure. Samrand, on the other hand, has always tried to reach an industry average, which they use as guideline when determining capital structure.

A final remark concerning how the case companies have decided their capital structure is that their decisions do not get the attention it deserves. It seems that their decisions are based on intuition rather than a clear analysis.

The analysis of the case companies' capital structure indicates that Putprop's capital structure is inappropriately positioned, due to their higher than average business risk in combination with their exceptionally low leverage. The business risk is based on the high-unlevered beta and the fundamental factors.

Based on the analysis, Putprop's financial risk is extremely low, due to high interest coverage ratio, the low interest sensitivity, and the fact that it is the least levered company in the real estate industry. This combination of business and financial risk would allow the company to increase leverage level in order to reach an appropriate position, according to Figure 3.4. Another argument for increasing leverage level is that the Trade-Off Model is not followed since they do not make maximum use of the tax shield.

To conclude, a more appropriate capital structure for Putprop can be reached in three ways: by increasing leverage level of 2% to 60%, which is industry average level or by increasing debt financing to the extent of maintaining an interest coverage ratio of 1.25, the level accepted by banks (Maisal, 1987) or interest coverage ratio of 1.78 which is an industry average. Under the latter two alternatives, debt financing will increase which will present the company with an opportunity to exploit tax advantage and thereby reducing the weighted average cost of capital (WACC), which in turn will increase theoretical value of the firm.

Gold-edge, on the other hand, is appropriately positioned due to their very low business risk and high leverage. This combination is considered an optimal, according to Figure 3.4. The low business risk is derived from low unlevered beta, which is further strengthened by fundamental factors. Their financial risk is based on low debt coverage ratio, extremely high interest rate sensitivity and the fact that it is the highest levered company in the industry. The fact that Gold-edge makes a maximum use of the tax shield, without putting the company in a financial distress, further emphases that according to the

Trade-Off Theory they are close to an optimal capital structure. The interest coverage ratio shows that the leverage level cannot further be increased. However, it is possible to maintain the current leverage level due to Gold-edge's strategies for coping with financial risk. To conclude, Gold-edge's current capital structure of 88 percent is considered as close to optimal as possible.

Samrand's capital structure is not optimal, based on two arguments. Firstly, it is inappropriately positioned according to Figure 3.4. This is due to the company's high business risk and high financial risk. The business risk is derived from its high-unlevered beta and its strong focus on commercial properties. The perception of Samrand's relatively high financial risk is due to the fact that is has the second largest financial beta in the industry which is more than three times as much as that of industry average of 0.19. Similarly, the company has interest coverage ratio, which is below that of industry. It has, however, leverage a level that is at an industry average.

The combination of the company's business risk and financial risk places it far away from the appropriate position according to Figure 3.4.
It is reasonable to argue that the current leverage level is inappropriate, even though the present cash flow is large enough to cover fixed interest expense, it is not sustainable as indicated by the low interest coverage trend. The company will need to revise its investment strategy and change from focusing on commercial property to having a more balanced investment to reduce the high business risk inherent in commercial properties. Even though lowering leverage would decrease the financial risk, it will make less use of the tax shield, and lowering the value of the firm. However, if the current investment strategy were maintained, a reduction in leverage level would be justified to maintain a proper balance between business and financial risk, which in return would reduce financial risk and increase the value of the firm. One can conclude therefore that, the company current capital structure is not optimal and change should be made.

8.1 Suggestion for further research

It was very surprising that this study found that theoretical models are totally inapplicable in practice. This is due to the fact that the models failed to take into account many important factors. These models were supposed to calculate the optimal capital structure without considering profitability, tangibility of assets, or growth amongst others. Currently the appealing theoretical model for estimating optimal capital structure is Static

Trade-off Model, but as Myers and Majluf stated in 1984, there are several factors that the model cannot explain. This therefore leads us to an important research area for the development of model that is much better than existing ones, especially for the real estate industry. The reason is that the companies in the real estate industry are fairly similar compared to other industries and there are fewer factors that need to be taken into account.

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JHI Real Estate Research, Property Annual Report 2002

JSE Profile's Handbook, 2002

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10. APPENDICES

10. 1. Appendix I

AGENCY COST OF EQUITY

Assume that there is a firm that is 100% owned by a single entrepreneur. He is both the owner and manager (O-M). For the action the O-M bears all the benefit or the full cost. For example, if the manager takes one day off, he bears the full cost of doing this. The O-M also benefits in full from all works he does, and he will take every possible action to increase his own wealth. However, if a portion of the company is sold by external equity to new shareholders, the O-M is co- owner, and no longer bears either all the benefit or the full cost of his actions. When a fraction of the company is sold, entrepreneur only bears his remaining proportion of the consequences of his actions. Since the entrepreneur no longer bears the full cost of his actions, there is an incentive for him to engage in perquisites (e.g. buy a corporate jet). When a fraction of company was sold, the entrepreneur reduced his cost of engaging in "perk" activities. He no longer bears the fully costs of perks, but he can benefit fully from the perk activities. The entrepreneur has lowered the cost of perk activities. But in an efficient market, investors are aware of this behaviour of entrepreneurs and its reflected in stock prices. Consequently, when a fraction of a company is sold, the stock price will be reduced. The stock prices will reflect perks, so one can say even if a fraction of a firm is sold, the entrepreneur will still bear the full costs of perks. By this behavior society is harmed and suffers a cost of equity and a reduction in the value of assets (Jensen & Meckling, 1976)

If the company decides to choose debt financing instead of external equity, the entrepreneur is still the sole owner, and will benefit full from action taken. When issuing external equity the extra cash flow has to be shared with other owners, whereas, in the case of a sole proprietor the full cash flow after interest is retained. In other words, one is expected to work harder when the firm is financed with debt rather than with equity. Shirking is more common when equity is issued (Ross and Westerfiel and Jaffe, 1993). A key to the mechanism that the shareholders use to reduce the agency cost of equity is to monitor the action of mangers by appointing a board of directors and an independent auditor. However, in so doing, monitoring costs are incurred which can also be viewed as agency cost of equity.

10.2 Appendix II

AGENCY COST OF DEBT

It is possible for bondholders/lenders to be fooled or misled by managers. For example, management might raise money from bondholders saying that it is a low risk lending (and therefore pay low interest rate) because the firm has low leverage/gearing and the funds will be used for low-risk projects. In the event that managers invest in higher risk ventures, and the firms becomes more highly levered/geared by borrowing more, the original bondholders/lenders do not receive a return equal to the level of risk and the firm has the benefit of low-interest financing.

Alternatively, consider a firm already in financial distress. From the shareholders' point of view there is little to lose by taking an enormous gamble by accepting a very high-risk projects. If the gamble pays off, managers will win but the debt holders will gain no more than the obliged fixed interest. If it fails, the shareholders are no worse off but the bondholders/lenders experience default on their securities. One of the solutions to reduce the agency cost of debt is to spend money on monitoring. The lender will require a premium on the debt interest to compensate for this additional cost. Also restrictions (covenants) are usually built into lending agreement. For example, there may be limits on the level of dividends so that shareholders do not strip the company of cash. There may be limits placed on the overall level of indebtedness, with precise capital and income-leverage ratios. Managers may be restricted in the disposal of major assets or constrained in the activity they may engage in.

Extensive covenants imposed by lenders can be costly for shareholders because they reduce the firm's operating freedom and investment flexibility. Thus agency costs, include monitoring costs, which are passed on as higher interest rates and a loss of value caused by the inhibition of managerial freedom to act. The lost efficiency plus monitoring costs are agency costs that increase the cost of debt and thus reduce its advantage.

10.3. Appendix III

FORMULA FOR THE KEY RATIOS FOUND IN APPENDIX VI

$$\text{Interest coverage ratio} = \frac{\text{Earning before interest and taxes}}{\text{Interest charges}}$$

$$\text{Leverage ratio} = \frac{\text{Total debt}}{\text{Total debt +shareholders' funds}}$$

$$\text{Debt/Equity ratio} = \frac{\text{Total debt}}{\text{Total equity}}$$

$$\text{Equity/debt ratio} = \frac{\text{Total equity}}{\text{Total debt}}$$

$$\text{Asset beta } (\beta_A) = \frac{E}{D(1-T)+E} \times \beta_E + \frac{D}{D(1-T)+E} \times \beta_D$$

OR

$$\text{Asset beta } (\beta_A) = \frac{E}{D(1-T)+E} \times \beta_E \quad \text{(if beta of debt } (\beta_D), \text{ is zero)}$$

$$\text{Financial beta} = \text{Equity beta } (\beta_E) - \text{Asset beta } (\beta_A)$$

10.4. Appendix IV

SUMMARY OF KEY RATIOS FROM SELECTED INDUSTRIES

(refer Appendix vi, page 89)

INDUSTRIES	LEVERAGE	EQUITY BETA	ASSET BETA	FINANCIAL BETA
BANKS	0.84	0.77	0.55	0.22
TRANSPORT	0.56	0.72	0.48	0.24
CONSTRUCTION & BUILDING	0.25	0.54	0.43	0.11
MINING	0.36	0.77	0.53	0.24
ELECTRONICS & ELECTRICITY	0.39	0.80	0.68	0.12
FOOD	0.30	0.49	0.39	0.10
INFORMATION TECHNOLOGY	0.65	1.22	0.87	0.35
RETAIL	0.36	0.64	0.53	0.11
FINANCIAL SERVICES	0.78	0.78	0.38	0.40
REAL ESTATES	0.60	0.39	0.22	0.17
SOFTWARE	0.12	1.20	1.01	0.16

Source: JSE Profile's Handbook, 2002

Cadiz Stock Broking Quantitative research, 2001

10.5 Appendix V

INTEREST COVERAGE RATIOS TABLE

COMPANY	INTEREST CHARGE	EARNING BEFORE INTEREST AND TAX	INTEREST COVERAGE RATIOS
PUTPROP	1,080	18,900	17.40
BONATLA	61,893	17,890	1.20
LIB-INT	2,467,660	61,893	2.20
PREMOGRO	83,863	3,316,075	1.10
PANPROP	79,859	84,263	1.70
CONFED	1,098	4,500	4.10
IPROP	40,755	46,050	1.13
MARSHALLS	2,704	5,400	2.18
SAMRAND	20,969	33,536	1.60
GOODCAPE	1,690	4,000	2.40
GOLD-EDGE	6,058	7,552	1.25
CHARAND	12,051	9,952	0.82

Source: Annual Reports, 2001 of companies listed above

10.6.Appendix VI

KEY RATIOS FOR SELECTED INDUSTRIES IN JSE FOR FISCAL YEAR 01/04/2001 TO 30/03/2002

(All data a from JSE Profile's Handbook, 2001 and Cadiz Stock Broking Research, 2001)

BANKING INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
ABSA	247300	231965	15335	162375.5	177710.5	15.13	0.94	0.07	1.21	1.11	0.10
BOE	67236	60834	6402	42583.8	48985.8	9.50	0.90	0.11	1.07	0.93	0.14
FIRST RAND	325531	124372	201159	87060.4	288219.4	0.62	0.38	1.62	1.12	0.34	0.78
MERCANTILE	3912909	3376253	536656	2363377.1	2900033.1	6.29	0.86	0.16	0.79	0.64	0.15
NEDCOR	197691	182843	14848	127990.1	142838.1	12.31	0.92	0.08	0.86	0.77	0.09
RMBH	12648	2363	10285	1654.1	11939.1	0.23	0.19	4.35	1.18	0.16	1.02
STANBANK	395813	369767	26046	258836.9	284882.9	14.20	0.93	0.07	-0.05	-0.05	0.00
Grand total	5159128	4348397	810731	3043877.9	3854608.9	58.28	5.13	0.19	6.18	4.88	2.27
Average						**5.36**	**0.84**	**0.19**	**0.77**	**0.55**	**0.28**
1-TC	0.70										

TRANSPORT INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
UNITRANS	1087289	184576	902713	129203	1031916	0.20	0.17	4.89	0.54	0.47	0.07
VALUE	260816	122675	138141	85873	224014	0.89	0.47	1.13	0.96	0.59	0.37
TRENCOR	9140012	6816112	2323900	4771278	7095178	2.93	0.75	0.34	1.01	0.33	0.68
SUPRGRP	1982835	806284	1176551	564399	1740950	0.69	0.41	1.46	0.15	0.10	0.05
PUTCO	207000	62600	144400	43820	188220	0.43	0.30	2.31	0.65	0.50	0.15
MILLAIR	66537	46881	19656	32817	52473	2.39	0.70	0.42	0.81	0.30	0.51
MOBILE	1292622	189148	1103474	132404	1235878	0.17	0.15	5.83	0.94	0.84	0.10
LASER	126784	0	126784	0	126784	0.00	0.00		0.96	0.96	0.00
GRINDROD	1263655	544067	719588	380847	1100435	0.76	0.43	1.32	0.68	0.44	0.24
CARGO	160201	46245	113956	32372	146328	0.41	0.29	2.46	0.01	0.01	0.00
AVIS	2095955	1083080	1012875	758156	1771031	1.07	0.52	0.94	1.00	0.57	0.43
COMAIR	581026	212405	368621	148684	517305	0.58	0.37	1.74	0.96	0.68	0.28
Grand total	18264732	10114073	8150659	7079851	15230510	10.51	4.55	22.83	8.67	5.81	2.86
Average						**1.24**	**0.55**	**0.81**	**0.72**	**0.48**	**0.24**
(1-Tc)	**0.70**										

CONSTRUCTION INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
AFGLASS	345427	40847	304580	28593	333173	0.13	0.12	7.46		0.00	0.00
AVENG	3277900	954900	2323000	668430	2991430	0.41	0.29	2.43	0.50	0.39	0.11
BASREAD	116288	96599	19689	67619	87308	4.91	0.83	0.20	0.55	0.12	0.43
CASHBUILD	88764	6904	81860	4833	86693	0.08	0.08	11.86	0.47	0.44	0.03
CEMENCO	62281	36385	25896	25470	51366	1.41	0.58	0.71	0.62	0.31	0.31
CERAMIC	379409	16340	363069	11438	374507	0.05	0.04	22.22	0.54	0.52	0.02
CONCOR	221048	69854	151194	48898	200092	0.46	0.32	2.16	0.64	0.48	0.16
DAWN	141846	25012	116834	17508	134342	0.21	0.18	4.67	0.50	0.43	0.07
ELB	498544	95663	402881	66964	469845	0.24	0.19	4.21	0.08	0.07	0.01
GROUP5	449567	84968	364599	59478	424077	0.23	0.19	4.29	0.74	0.64	0.10
ILLIAD	97616	1048	96568	734	97302	0.01	0.01	92.15	0.09	0.09	0.00
ITLTILE	274135	7367	266768	5157	271925	0.03	0.03	36.21	0.49	0.48	0.01
MASONITE	127073	18226	108847	12758	121605	0.17	0.14	5.97	0.41	0.37	0.04
M&R-HLD	3193	716	2477	501	2978	0.29	0.22	3.46	0.84	0.70	0.14
TILEAFRIK	70862	1002	69860	701	70561	0.01	0.01	69.72		0.00	0.00
WDHO	361539	72828	288711	50980	339691	0.25	0.20	3.96	1.10	0.93	0.17
PPC	2628000	763400	1864600	534380	2398980	0.41	0.29	2.44	0.56	0.44	0.12
Grand total	9143492	2292059	6851433	1604441	8455874	9.30	3.73	274.13	8.13	6.42	1.71
Average						**0.33**	**0.25**	**2.99**	**0.54**	**0.43**	**0.11**
1-Tc	0.70										

MINING INDUSTRY.

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
ANGLO PLAT	15788	3266	12522	2286.2	14808.2	0.26	0.21	3.83	1.40	1.18	0.22
ANGLO	19264	5838	13426	4086.6	17512.6	0.43	0.30	2.30	1.48	1.13	0.35
ANGLO GOLD	26277	13457	12820	9419.9	22239.9	1.05	0.51	0.95	0.78	0.45	0.33
AVMIN	6205	3913	2292	2739.1	5031.1	1.71	0.63	0.59	0.99	0.45	0.54
ASSMAG	2164278	328806	1835472	230164.2	2065636.2	0.18	0.15	5.58	0.99	0.88	0.11
ASSORE	1343454	163969	1179485	114778.3	1294263.3	0.14	0.12	7.19	0.60	0.55	0.05
AVGOLD	2933642	733856	2199786	513699.2	2713485.2	0.33	0.25	3.00		0.00	0.00
BARPLAST	176555	29603	146952	20722.1	167674.1	0.20	0.17	4.96	0.59	0.52	0.07
BILLITON	23575	11396	12179	7977.2	20156.2	0.94	0.48	1.07	1.18	0.71	0.47
CAM	1055255	621869	433386	435308.3	868694.3	1.43	0.59	0.70	0.47	0.23	0.24
FALCON	4570	2082	2488	1457.4	3945.4	0.84	0.46	1.20	0.58	0.37	0.21
HARMONY	7817178	2892824	4924354	2024976.8	6949330.8	0.59	0.37	1.70		0.00	0.00
IMPLAST	8950300	1556200	7394100	1089340	8483440	0.21	0.17	4.75	1.08	0.94	0.14
JCG-OLD	1876971	36430	1840541	25501	1866042	0.02	0.02	50.52	0.80	0.79	0.01
KEKGRAN	179924	12283	167641	8598.1	176239.1	0.07	0.07	13.65	0.40	0.38	0.02
KUMBA	7343000	3109000	4234000	2176300	6410300	0.73	0.42	1.36		0.00	0.00
LONMIN	930000	273000	657000	191100	848100	0.42	0.29	2.41	0.79	0.61	0.18
MAZAL	23506	15792	7714	11054.4	18768.4	2.05	0.67	0.49	0.23	0.09	0.14
MESSINA	361002	284023	76979	198816.1	275795.1	3.69	0.79	0.27	0.45	0.13	0.32
METOREX	550839	319516	231323	223661.2	454984.2	1.38	0.58	0.72	0.91	0.46	0.45
PALAMIN	4280428	2487695	1792733	1741386.5	3534119.5	1.39	0.58	0.72	0.91	0.46	0.45
RANGOLD	1114855	922108	192747	645475.6	838222.6	4.78	0.83	0.21	1.24	0.29	0.95
NORTHAM	1918581	136628	1781953	95639.6	1877592.6	0.08	0.07	13.04	1.24	1.18	0.06
GFIELDS	15706300	6537200	9169100	4576040	13745140	0.71	0.42	1.40	0.68	0.45	0.23
Grand Total	58821747	20500754	38320993	14350528	52671520.8	23.63	9.16	122.62	17.79	12.26	5.53
Average						**0.53**	**0.35**	**1.87**	**0.77**	**0.53**	**0.24**
1-Tc	0.7										

ELECTRONIC AND ELECTRIC INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	DE	Leverage	E/D	Equity beta	Asset beta	Financial beta
ALTRON	4616470	2671395	1945075	1869976.5	3815051.5	1.37	0.58	0.73	0.62	0.32	0.30
ALTECH	972982	57641	915341	40348.7	955689.7	0.06	0.06	15.88	0.89	0.85	0.04
BICAF	779000	220000	559000	154000	713000	0.39	0.28	2.54	0.34	0.27	0.07
CONTROL	86354	14296	72058	10007.2	82065.2	0.20	0.17	5.04	0.34	0.30	0.04
DELTA	721460	21128	700332	14789.6	715121.6	0.03	0.03	33.15	0.96	0.94	0.02
DGICOR	102664	854	101810	597.8	102407.8	0.01	0.01	119.22	0.96	0.95	0.01
GRINTEK	460471	88125	372346	61687.5	434033.5	0.24	0.19	4.23	1.27	1.09	0.18
JASCO	30182	84	30098	58.8	30156.8	0.00	0.00	358.31		0.00	0.00
SETHOLD	46833	14579	32254	10205.3	42459.3	0.45	0.31	2.21	0.99	0.75	0.24
STELLA	29452	10656	18796	7459.2	26255.2	0.57	0.36	1.76		0.00	0.00
Grand Total	7845868	3098758	4747110	2169130.6	6916240.6	3.33	1.99	543.06	6.37	5.47	0.90
Average						**0.65**	**0.39**	**1.53**	**0.80**	**0.68**	**0.11**
1-Tc	0.7										

FOOD INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
ALL-JOY	4744	277	4467	193.9	4660.9	0.06	0.06	16.13	-0.03	-0.03	0.00
A-V-I	3416	930	2486	651	3137	0.37	0.27	2.67	0.47	0.37	0.10
ASTRAL	520724	101298	419426	70908.6	490334.6	0.24	0.19	4.14	0.27	0.23	0.04
CONAFEX	21441	3066	18375	2146.2	20521.2	0.17	0.14	5.99	-0.47	-0.42	-0.05
CROOKES	248445	46149	202296	32304.3	234600.3	0.23	0.19	4.38	0.4	0.34	0.06
HLH	2164759	398559	1766200	278991.3	2045191.3	0.23	0.18	4.43	0.64	0.55	0.09
ILLOVO	4161600	2375300	1786300	1662710	3449010	1.33	0.57	0.75	0.71	0.37	0.34
INTRADING	65390	960	64430	672	65102	0.01	0.01	67.11	0.68	0.67	0.01
KOLOSUS	194783	28371	166412	19859.7	186271.7	0.17	0.15	5.87	0.92	0.82	0.10
NAMFISH	173656	38763	134893	27134.1	162027.1	0.29	0.22	3.48	0.45	0.37	0.08
NAMSEA	38647	3459	35188	2421.3	37609.3	0.10	0.09	10.17	0.1	0.09	0.01
OTK	1467592	81772	1385820	57240.4	1443060.4	0.06	0.06	16.95	0.7	0.67	0.03
OCEANA	605607	20329	585278	14230.3	599508.3	0.03	0.03	28.79	0.27	0.26	0.01
RAIBOW	897199	39899	857300	27929.3	885229.3	0.05	0.04	21.49	0.8	0.77	0.03
SOVFOOD	150465	60019	90446	42013.3	132459.3	0.66	0.40	1.51	0.48	0.33	0.15
TONGAAT	7044	2655	4389	1858.5	6247.5	0.60	0.38	1.65	0.77	0.54	0.23
TIGBRAND	5340	3254	2086	2277.8	4363.8	1.56	0.61	0.64	0.67	0.32	0.35
Grand Total	10730852	3205060	7525792	2243542	9769334	6.17	3.60	196.16	7.83	6.28	1.55
Average						**0.43**	**0.30**	**2.35**	**0.49**	**0.39**	**0.10**
1-Tc	0.7										

INFORMATION TECHNOLOGY INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
APLITEC	362,290	4,829	357,461	3,380	360,841	0.01	0.01	74.02	1.81	1.79	0.02
MAXTEC	20,590	137	20,453	96	20,549	0.01	0.01	149.29	0.92	0.92	0.00
MUSTEK	638,466	279,855	358,611	195,899	554,510	0.78	0.44	1.28	0.89	0.58	0.31
AST-GROUP	744,481	175,833	568,648	123,083	691,731	0.31	0.24	3.23	1.41	1.16	0.25
BTG	763,360	176,589	586,771	123,612	710,383	0.30	0.23	3.32	1.36	1.12	0.24
COMPAREX	4,291,900	820,300	3,471,600	574,210	4,045,810	0.24	0.19	4.23	0.91	0.78	0.13
COMPCLEAR	29,699	574	29,125	402	29,527	0.02	0.02	50.74	1.14	1.12	0.02
CONNECT	52,291	0	52,291	0	52,291	0.00	0.00	0.00	1.03	1.03	0.00
CRUX	17,794	0	17,794	0	17,794	0.00	0.00	0.00	-0.65	-0.65	0.00
CSH	177,783	20,159	157,624	14,111	171,735	0.13	0.11	7.82	0.85	0.78	0.07
DATATECH	3,883,000	3,490,500	392,500	2,443,350	2,835,850	8.89	0.90	0.11	1.7	0.24	1.46
DCENTRIX	125,735	6,390	119,345	4,473	123,818	0.05	0.05	18.68	1.47	1.42	0.05
DIDATA	2,591,088	0	2,591,088	0	2,591,088	0.00	0.00	0.00	1.27	1.27	0.00
FARITECH	87,933	649	87,284	454	87,738	0.01	0.01	134.49	0.81	0.81	0.00
GLOTECH	504,646	50,242	454,404	35,169	489,573	0.11	0.10	9.04	1.24	1.15	0.09
HICORL	27,143	26,384	759	18,469	19,228	34.76	0.97	0.03	1.34	0.05	1.29
IDION	255,412	23,868	231,544	16,708	248,252	0.10	0.09	9.70	1.2	1.12	0.08
INTERVID	650,677	389,504	261,173	272,653	533,826	1.49	0.60	0.67	2.64	1.29	1.35
MAXTECH	20,590	137	20,453	96	20,549	0.01	0.01	149.29	0.37	0.37	0.00
MGX	612,752	83,139	529,613	58,197	587,810	0.16	0.14	6.37	0.92	0.83	0.09
OSI	17,074	2,317	14,757	1,622	16,379	0.16	0.14	6.37	1.64	1.48	0.16
SPESCOM	113,342	91,861	21,481	64,303	85,784	4.28	0.81	0.23	0.17	0.04	0.13
UCS	187,701	486	187,215	340	187,555	0.00	0.00	385.22	1.13	1.13	0.00
VESTA	19,341	309	19,032	216	19,248	0.02	0.02	61.59	1.27	1.26	0.01
PINNACLE	79168	12,251	66917	8,576	75,493	0.18	0.15	5.46	0.81	0.72	0.09
Grand Total	16,274,256	5,656,313	10,617,943		14,577,362	52.01	5.23	1081.20	28	21.79	5.86
Average						**0.53**	**0.65**	**1.88**	**1.12**	**0.87**	**0.23**

1-Tc 0.70

RETAIL INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
WOOLIES	3999100	1627900	2371200	1139530	3510730	0.69	0.41	1.46		0.00	0.00
TRADEH	209241	23653	185588	16557.1	202145.1	0.13	0.11	7.85	0.8	0.73	0.07
TRUWHTS	3061800	602300	2459500	421610	2881110	0.24	0.20	4.08	0.84	0.72	0.12
RELYANT	2690300	348500	2341800	243950	2585750	0.15	0.13	6.72	0.38	0.34	0.04
RAG	2234352	532648	1701704	372853.6	2074557.6	0.31	0.24	3.19	0.47	0.39	0.08
REX-TRUE	1107900	153400	954500	107380	1061880	0.16	0.14	6.22	1.39	1.25	0.14
PEPKOR	1081813	470974	610839	329681.8	940520.8	0.77	0.44	1.30	0.5	0.32	0.18
PROFURN	429769	152348	277421	106643.6	384064.6	0.55	0.35	1.82		0.00	0.00
NUCLICK	161349	280	161069	196	161265	0.00	0.00	575.25	1.14	1.14	0.00
NICTUS	1286879	75270	1211609	52689	1264298	0.06	0.06	16.10	0.93	0.89	0.04
MASSMART	1919520	230910	1688610	161637	1850247	0.14	0.12	7.31	0.4	0.37	0.03
METJE	1339114	181305	1157809	126913.5	1284722.5	0.16	0.14	6.39	0.27	0.24	0.03
METCASH	32974	2425	30549	1697.5	32246.5	0.08	0.07	12.60		0.00	0.00
LA GROUP	1747600	371500	1376100	260050	1636150	0.27	0.21	3.70	1.14	0.96	0.18
HNCHOICE	51110	1531	49579	1071.7	50650.7	0.03	0.03	32.38	-0.3	-0.29	-0.01
FOSCHINI	3391	2090	1301	1463	2764	1.61	0.62	0.62		0.00	0.00
EDCON	249227	10621	238606	7434.7	246040.7	0.04	0.04	22.47	1.14	1.11	0.03
MRPRICE	325909	26339	299570	18437.3	318007.3	0.09	0.08	11.37	0.92	0.87	0.05
MIDAS	171363	299	171064	209.3	171273.3	0.00	0.00	572.12	0.14	0.14	0.00
NICTUS	32974	0	32974	0	32974	0.00	0.00	0.00	0.02	0.02	0.00
PICKNPAY	1921400	643400	1278000	450380	1728380	0.50	0.33	1.99	0.4	0.30	0.10
SHORPRIT	6592818	5222324	1370494	3655626.8	5026120.8	3.81	0.79	0.26	0.88	0.24	0.64
TILEAFRIK	70862	1002	69860	701.4	70561.4	0.01	0.01	69.72	0.48	0.48	0.00
VALCAR	50048	31090	18958	21763	40721	1.64	0.62	0.61	0.64	0.30	0.34
WESTCOR	4383945	2047124	2336821	1432986.8	3769807.8	0.88	0.47	1.14	0.11	0.07	0.04
WOOLTRU	3516800	617300	2899500	432110	3331610	0.21	0.18	4.70	1.3	1.13	0.17
WOOLTRU-N	4299100	1927900	2371200	1349530	3720730	0.81	0.45	1.23	0.8	0.51	0.29
Grand Total	42970658	15304433	27666225	10713103	38379328.1	13.35	6.24	1372.60	14.79	12.21	2.58
Average						**0.55**	**0.36**	**1.81**	**0.64**	**0.53**	**0.11**

1-Tc 0.7

FINANCIAL SERVICES INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
TISEC	127233	57373	69860	40161.1	110021.1	0.82	0.45	1.22	0.97	0.62	0.35
SASFIN	1100955	940000	160955	658000	818955	5.84	0.85	0.17	1.15	0.23	0.92
PERGRIN	25227	18597	6630	13017.9	19647.9	2.80	0.74	0.36		0.00	0.00
PROPER	1245967	13084	1232883	9158.8	1242041.8	0.01	0.01	94.23	1.2	1.19	0.01
PSG	15824	7600	8224	5320	13544	0.92	0.48	1.08	1.2	0.73	0.47
PSGBANKH	1100955	947716	153239	663401.2	816640.2	6.18	0.86	0.16	1.68	0.32	1.36
NIBH	156009	110366	45643	77256.2	122899.2	2.42	0.71	0.41	1.09	0.40	0.69
METTLE	387733	39893	347840	27925.1	375765.1	0.11	0.10	8.72		0.00	0.00
JDGROUP	22135	11210	10925	7847	18772	1.03	0.51	0.97	0.65	0.38	0.27
IDION	4477100	3259100	1218000	2281370	3499370	2.68	0.73	0.37		0.00	0.00
INCENT	3341513	1751624	1589889	1226136.8	2816025.8	1.10	0.52	0.91		0.00	0.00
INDEQTY	30242000	26931000	3311000	18851700	22162700	8.13	0.89	0.12	1.05	0.16	0.89
INVESTEC	412024	80266	331758	56186.2	387944.2	0.24	0.19	4.13		0.00	0.00
UNIFER	3548	1502	2046	1051.4	3097.4	0.73	0.42	1.36		0.00	0.00
TIGON	1359346	113379	1245967	79365.3	1325332.3	0.09	0.08	10.99	1.1	1.03	0.07
SOLUTIONS	64740	58730	6010	41111	47121	9.77	0.91	0.10	0.97	0.12	0.85
CADIZ	461418	211108	250310	147775.6	398085.6	0.84	0.46	1.19	1.36	0.86	0.50
Grand Total	44543727	34552548	9991179	24186784	34177962.6	43.74	8.92	126.50	12.42	6.03	6.39
Average						**3.46**	**0.78**	**0.29**	**0.78**	**0.38**	**0.40**
1-Tc	0.7										

REAL ESTATE INDUSTRY

Company	Assets	Equity	Debt	D(1-Tc)	D(1-Tc)+E	Leverage	D/E	E/D	Equity Beta	Asset beta	Financial beta
APEXHI-A	1,593,575	186018	1407557	985290	1171308	0.88	7.57	0.13	0.30	0.05	0.25
A-PROP	791,084	244573	546511	382558	627131	0.69	2.23	0.45	0.10	0.04	0.06
ATLAS	698,611	89650	608961	426273	515923	0.87	6.79	0.15	0.07	0.01	0.06
GROWPNT	1,768,756	1155084	613672	429570	1584654	0.35	0.53	1.88	0.28	0.20	0.08
HYPROP	707,310	242262	535235	374665	616927	0.76	2.21	0.45	0.21	0.08	0.13
METPROL	956,038	524554	431484	302039	826593	0.45	0.82	1.22	0.42	0.27	0.15
OCTODEC	612,286	265054	347232	243062	508116	0.57	1.31	0.76	0.41	0.21	0.20
PRIMEGRO	2,305,462	299817	2005645	1403952	1703769	0.87	6.69	0.15	0.08	0.01	0.07
RLSPROPS	414,188	106554	307634	215344	321898	0.74	2.89	0.35	0.19	0.06	0.13
SABLE	143,211	90950	52261	36583	127533	0.36	0.57	1.74	0.72	0.51	0.21
SPEARHD	359,840	175224	184616	129231	304455	0.51	1.05	0.95	0.13	0.07	0.06
RICHWAY	1,137,986	401406	736580	515606	917012	0.65	1.83	0.54	0.16	0.07	0.09
BONATLA	662324	169407	492917	345042	514449	0.74	2.91	0.34	0.45	0.15	0.30
CHARAND	304317	167369	136948	95864	263233	0.45	0.82	1.22	0.41	0.20	0.21
CONFED	52346	48575	3771	2640	51215	0.07	0.08	12.88	0.11	0.10	0.01
GOLDEDGE	***57913***	***6076***	***51104***	***35773***	***41849***	***0.88***	***8.41***	***0.12***	***0.83***	***0.12***	***0.71***
GOODCAPE	29800	15289	14511	10158	25447	0.49	0.95	1.05	0.63	0.38	0.25
IPROP	470160	237758	232402	162681	400439	0.49	0.98	1.02	0.96	0.57	0.39
LIBINT	4186000	2398700	1787300	1251110	3649810	0.43	0.75	1.34	0.19	0.12	0.07
MARSHALLS	108246	72004	36242	25369	97373	0.33	0.50	1.99	0.32	0.24	0.08
PANPROP	852698	471172	381526	267068	738240	0.45	0.81	1.23	0.09	0.06	0.03
PUTPROP	***136300***	***133100***	***3200***	***2240***	***135340***	***0.02***	***0.02***	***41.59***	***0.72***	***0.71***	***0.01***
SAMRAND	***166803***	***66677***	***100126***	***70088***	***136756***	***0.60***	***1.50***	***0.67***	***1.19***	***0.76***	***0.62***
TOTAL	18,515,254	7567273	11017435	7712205	15279478	12.67	52.23	72.24	7.78	4.25	3.28
AVERAGE						**0.60**	**1.46**	**0.69**	**0.39**	**0.22**	**0.17**
1-Tc	0.7										

SOFTWARE AND COMPUTER INDUSTRY

Company Name	Assets	Debt	Equity	D(1-Tc)	D(1-Tc)+E	D/E	Leverage	E/D	Equity beta	Asset beta	Financial beta
SQONE	187701	2463	185238	1724.1	186962.1	0.01	0.01	0.01	1.36	1.35	0.01
SYNERGY	19341	309	19032	216.3	19248.3	0.19	0.02	0.02	1.13	1.12	0.01
PCN	2522	29	2493	20.3	2513.3	0.33	0.01	0.01		0.00	0.00
PRISM	543237	36	543201	25.2	543226.2	0.00		0.00		0.00	0.00
OSI	113342	93563	19779	65494.1	85273.1	5.67	0.83	4.73	1.37	0.32	1.05
MBTECH	7598	3155	4443	2208.5	6651.5	3.96	0.42	0.71	1.64	1.10	0.54
MGX	3412	114	3298	79.8	3377.8	0.09	0.03	0.03	0.92	0.90	0.02
INFOWAVE	178847	8638	170209	6046.6	176255.6	0.05	0.05	0.05	1.2	1.16	0.04
INTERVID	337002	61283	275719	42898.1	318617.1	0.29	0.18	0.22		0.00	0.00
IST	17074	2317	14757	1621.9	16378.9	0.16	0.14	0.16	2.64	2.38	0.26
FRONTRANGE	404003	29996	374007	20997.2	395004.2	0.40	0.07	0.08		0.00	0.00
GLOTEC	612752	85193	527559	59635.1	587194.1	0.64	0.14	0.16		0.00	0.00
EC HOLD	11325	313	11012	219.1	11231.1	0.03	0.03	0.03	0.45	0.44	0.01
EOH	650677	84238	566439	58966.6	625405.6	0.15	0.13	0.15		0.00	0.00
DATATEC	116559	8164	108395	5714.8	114109.8	0.13	0.07	0.08	0.48	0.46	0.02
DIMENSION DATA	278138	34587	243551	24210.9	267761.9	0.14	0.12	0.14	1.7	1.55	0.15
COMPAREX	504646	78848	425798	55193.6	480991.6	0.16	0.16	0.19	1.47	1.30	0.17
BTG	70134	16835	53299	11784.5	65083.5	0.32	0.24	0.32	1.36	1.11	0.25
AST	39041	1861	37180	1302.7	38482.7	0.05	0.05	0.05	1.02	0.99	0.03
Grand Total	4097351	511942	3585409	358359.4	3943768.4	12.77	2.69	7.13	16.74	14.16	2.58
Average						**0.14**	**0.12**	**7.00**	**1.20**	**1.01**	**0.16**
1-Tc	0.7										

10.6 APPENDIX VII

The summary of information questions that were used to guide the experience survey are as follows:

Point one-four (question 1-4)

1 Rank the following sources of long-term financing in order of preference for financing new investment.

Retained earnings/ internal equity

Straight debt

Convertible debt

External common equity

Straight preferred stock

Convertible preferred stock

2 Given an attractive new growth opportunity that could not be taken with out departing from your target capital structure or financing hierarchy, cutting the dividends, or selling of assets, what action is your firm most likely to take?

Courses of action:

Deviate from target capital structure or financing hierarchy

Forgo the growth opportunity

Sell off other assets

Cut the dividend

3 Indicate the relative importance of the following factors in governing your firm's financing decision

Projected cash flow from asset to be financed

Risk of asset to be financed

Restrictive covenants on senior securities

Avoiding dilution of common shareholders' claim

Corporate tax rate

Voting control

Depreciation and non other tax shield

Bankruptcy costs

4.In your opinion, the debt ratio of your firm depends on …

Disagree				Agree
1	2	3	4	5
Past profit				
Average debt ratio in your industry				
Past growth				
Degree of diversification achieved by your firm				
Past dividend payout				

Point five (1-4)

1.Would you please explain what procedures/ rules/ models you use when establishing optimal capital structure?

2.Are you aware of any models/ formulae that are supposed to help in establishing optimal capital structure. If you have knowledge of those models to what extent do you apply them?

3.Given the current capital structure of your company, would your explain is optimal or not? Can you justify your answer?

4.In your opinion can you single out the most important factor that is central to the capital structure decision process of your company?